THE USE OF THE ANDROID-BASED SANG NILA UTAMA DIGITAL MUSEUM APPLICATION TO IMPROVE SKILLS USE PRIMARY SOURCE EVIDENCE

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Abstrak:

Rendahnya keterampilan siswa dalam membaca dan menganalisis sumber sejarah disebabkan oleh pembatasan sosial akibat pandemi covid-19. Sehingga kegiatan di luar sekolah seperti karyawisata sejarah ditiadakan. Menanggapi permasalahan tersebut, penelitian ini bertujuan untuk mengetahui apakah ada pengaruh penggunaan aplikasi museum digital Sang Nila Utama berbasis Android terhadap keterampilan menggunakan bukti sumber primer siswa SMA di Kota Pekanbaru. Metode penelitian eksperimen dengan rancangan randomized pretest-posttest control group design digunakan sebagai pendekatan dalam penelitian ini. Subjek penelitian ini melibatkan 96 siswa SMA Negeri 1 Kota Pekanbaru yang dipilih melalui teknik proporsional sampling. Data penelitian dikumpulkan melalui penggunaan lembar tes keterampilan bukti sumber primer yang disusun berdasarkan tujuan penelitian. Analisis data hasil penelitian dilakukan dengan pendekatan deskriptif kuantitatif melalui uji statistik uji-t untuk melihat pengaruh pemberian perlakuan terhadap variabel. Hasil penelitian menunjukkan bahwa terdapat pengaruh yang signifikan penggunaan aplikasi museum digital Sang Nila Utama berbasis Android terhadap keterampilan menggunakan bukti sumber primer siswa SMA di Kota Pekanbaru yang dibuktikan dengan nilai signifikansi uji-t sebesar 0,000 atau kurang dari 0,05. Rata-rata skor posttest antara kelompok kontrol dan kelompok eksperimen menunjukkan adanya perbedaan. Sehingga disimpulkan bahwa penggunaan aplikasi museum digital Sang Nila Utama berbasis Android berpengaruh signifikan terhadap keterampilan penggunaan bukti sumber primer siswa.

Kata Kunci: *Aplikasi android, museum sang nila, keterampilan use primary source evidence*

Abstract:

The low skills of students in reading and analyzing historical sources are caused by social restrictions due to the covid-19 pandemic. So that activities outside of school such as historical field trips are abolished. Responding to this issue, this study aims to determine whether there is an effect of using the Android-based Sang Nila Utama digital museum application on the skills of using primary source evidence for high school students in Pekanbaru City. Experimental research method with randomized pretest-posttest control

group design is used as an approach in this study. The research subjects involved 96 students of SMA Negeri 1 Pekanbaru City who were selected through proportional sampling technique. The research data were collected through the use of primary source evidence skill test sheets which were arranged based on the research objectives. The data analysis of the research results was carried out with a quantitative descriptive approach through the t-test statistical test to see the effect of giving treatment to the variable. The research findings show that there is a significant effect of using the Android-based Sang Nila Utama digital museum application on the skills of using primary source evidence of high school students in Pekanbaru City which is confirmed by the t-test significance value of 0.000 or less than 0.05. The average posttest score between the control group and the experimental group showed a difference. So it was concluded that the use of the Android-based Sang Nila Utama digital museum application had a significant effect on students' primary source evidence use skills.

Keywords: *Android application, Sang Nila museum, use primary source evidence*

Introduction

History is a past event that contains values for current and future lif[1]. Understanding the events that have occurred can only be done through the evidence left behind which is often referred to as historical sources [2,3]. Historical sources can be in the form of written documents, historical witnesses in the form of people who were directly or indirectly involved in a past event, and objects (artifacts) as part of past lives[4]. These historical sources will not provide information just like that without any historical investigation and reconstruction activities by historians, historical academics, and students who study history. An investigation effort is needed through stages and scientific methods to find and obtain historical truth from a historical source. Reading historical sources requires critical, analytical, and historical thinking skills that are different from reading ordinary information[5,6].

When someone reads general information, for example reading an announcement about a music concert, they only need to find out when, where it will be held, and who will be attending the concert. Unlike the case with reading documents or historical sources, where a historian, historical academic, and students who study history, will be faced with analyzing and criticizing the

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contents of the document, then they will interpret the data presented to draw a conclusion about an event. past. Of course, activities like this will involve a series of higher-order thinking skills such as critical thinking, analytical, causality, and generative. By Seixas and Morton this historical source reading skill is referred to as the Use Primary Source Evidence skill which is one aspect of historical thinking skills[7].

In learning history, the skills of using primary source evidence include students' skills in searching, finding, identifying, analyzing, and building historical conclusions from some information/data found from historical sources[8]. This skill is a skill that must be possessed by historians, historical academics, and students who study history in reconstructing past events so that accurate data is obtained to build historical narratives [9], [10]. Wineburg et al. stated that to obtain valid, reliable, and accurate data about a past event, students must carry out activities as carried out by a historian, namely conducting historical research through scientific steps[11].

There are several methods for students to obtain historical data include analyzing written documents available in regional libraries or museums, conducting interviews with historical witnesses, and making direct visits to historical sources or sites.Wartofsky said that visiting historical sources is a the most sophisticated method for finding and understanding past events[12] . The most complete historical sources are usually found in museums. The museum is an institution that specializes in storing and collecting various evidences of past relics [13]. In Riau Province, for example, has several museums which can be a source for participants students to learn about past events, one of which is the Sang Nila Utama museum which is the most complete museum in Riau Province. The Sang Nila Utama Museum collects Malay cultural heritages such as traditional wedding clothes, traditional games, musical instruments, artifacts, miniature historical buildings, and other collections. So this museum is very suitable to be used as a source of learning history for students.

However, since the Covid-19 Pandemic, which caused restrictions on social mobility, the Riau Provincial Cultural Office closed the Sang Nila Utama museum from public visits as a follow-up to the implementation of PPKM in Riau Province. As a result, students cannot reach this museum to find some information related to historical sources in the museum, causing the reading skills and using historical

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sources of high school students in Pekanbaru City to decline. Based on the results of the researcher's initial research on the skills of using primary source evidence of students in Pekanbaru City, it was found that during the covid 19 pandemic, students rarely involved various historical sources in reconstructing past events to build historical narratives. On average, only 12% of student activities involve the use of historical sources during the COVID-19 pandemic, and even then it is limited to written documents available in school libraries. So this results in a decline in students' skills in reading and using historical sources. In response to this issue, the researcher offers an alternative solution by utilizing technology through the application of the Android-based Sang Nila Utama Digital Museum Application. The applications offered will be able to be used in the distance learning process (online). The application offered utilizes Augmented Reality so that it can give the impression that the user feels the real environment. This is so that students can explore the museum as a whole through digital technology. So that the skills of searching, finding, identifying historical sources can be improved. The application that will be offered is based on Android with the consideration that it is more practical to use. Several studies have shown that the use of android-based digital learning media during the COVID-19 pandemic can improve student achievement in learning, increase student motivation and interest in learning and support distance learning [14], [15]. The use of Augmented Reality will encourage students' enthusiasm for learning and be able to develop higher-order thinking skills because students can interact with learning resources as if in real life[16],[17]. Based on the theoretical basis and the problems above, this study aims to see the effect of using the Android-based Sang Nila Utama digital museum application in improving Use Primary Source Evidence skills.

Research Method

This study used a randomized pretest-posttest control group design as an experimental design. Two groups will participate in this study. The first group (X1) is the experimental group, which is treated with the Android-based Sang Nila Utama digital museum application. The second group, which received Conventional learning (X2), acted as the control group. N-gain data is used to determine the influence of the Android-based Sang Nila Utama digital application on students' primary source evidence use skills. The results of these measurements were analyzed and compared with statistical tests. The design of this research can be seen in table 1.

Table 1. The design of measuring skills using primary source evidence using pretest and posttest

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Class	Pretets	Treatment	Posttest
Experiment	0_1	X_1	0_2
Control	0_3	X_2	0_4

Description:
0_1 : Experimental group data on the pretest test
0_2 : experimental group data on the posttest test
0_3 : control group data on the pretest test
0_4 : control group data on the posttest test

The research population is SMA Negeri 1 students in Pekanbaru City class X, totaling 294 students as shown in the table below is:

Table 2. research population

No	Class List	The Number of Students
1	Class A	36
2	Class B	38
3	Class C	36
4	Class D	38
5	Class E	36
6	Class F	37
7	Class G	37
8	Class H	36
Total Students		294

12 participants were selected based on sampling technique proportional. Therefore, this study involved 96 students.

The data collection instrument consisted of a skill assessment sheet using primary source evidence. Prior to testing the use of primary source evidence skills, the instrument of the assessment sheet is tested for validity and reliability first to ensure that the instruments used are valid and reliable to measure students' use of primary source evidence skills. The data of this study were obtained through the results of measuring students' skills to use primary source evidence which was measured based on the indicators that had been set.

Data analysis of research results was carried out with a quantitative descriptive approach. Data analysis was carried out through t-test statistical tests to see the effect of giving treatment to the variables. Before doing the t-test, homogeneity test was first performed to see the variance of the pretest data used.

Research Hypothesis Formulation

H_0 : The Android-based Sang Nila Utama digital museum application has no effect on the skills to use primary source evidence

H_1 : The Android-based Sang Nila Utama digital museum application affects the use of primary source evidence

Results and Discussion

Result

Results of the Use Primary Source Evidence Skills Test Results use primary source evidence in the experimental class using the Android-based Sang Nila Utama digital museum application, while the control class uses media conventional learning. The results of the pretest and posttest in each group can be seen in table 3.

Table 3. Description of the skills to use primary source evidence in the experimental group and control group for each pretest and posttest test

Group	N	SMI	Range	X_{Min}	X_{Max}	Mean	Std. Deviation
Experiment							
Pretest	48	100	7	45	77	61.34	3,831
Posttest	48	100	5	67	93	3.383	81.23
Control							
Pretest	48	100	6	46	63	54.57	3.709
Posttest	48	100	8	68	71	69.67	3,453

Based on the table above shows that the ideal maximum value is 100. In the experimental group , the highest score obtained at the pre-test was 77, the lowest score was 45, the mean score was 61.34 and the standard deviation was 3.831, while in the post-test, the highest score increased to 93, the lowest score achieved increased to 678, the average score The mean increased to 81.23 and the standard deviation was 3.383. Meanwhile in the control group, the highest score obtained at the pre-test was 46, the lowest score was 63, the average score was 54.57 and the standard deviation was 3.709 in the post-test. The highest score increased to 68, the lowest score achieved increased to 71, and the mean score increased to 69.67 and the standard deviation was 3.543.

Table 2 shows that mathematically, the average posttest scores of the two groups are indeed different. However, whether there is an effect of the application of the Android-based Sang Nila Utama digital museum on the skills of using primary source evidence of high school students in Pekanbaru City in learning history, a hypothesis test is carried out through a t-test. However, before doing the t test, it is necessary to do a normality test and a homogeneity test. The results of the normality and homogeneity tests between the control and experimental groups are presented in Tables 4 and 5 below:

Table 4. The results of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistics	df	Sig.
Control class	.167	94	.010	.933	94	.208
Experimental class	.106	94	.200*	.976	94	.603
*. This is a lower bound of the true significance.						

a. Lilliefors Significance Correction

Based on table 4 it can be seen that the data is normally distributed with a significance value (*Sig)* for the control class (0.208 > 0.005) and the experimental class (0.603 > 0.05).

Furthermore, to find out whether the pretest data had the same variance or not, homogeneity test was carried out using Levene's Statistics. The results of the homogeneity test are presented in table 5.

Table 5. The results of the homogeneity test of the pretest data of the experimental group and the control group

		Levene Statistics	**df1**	**df2**	**Sig.**
Pretest	Based on Mean	.017	1	94	.916
	Based on Median	.016	1	94	.921
	Based on Median and with adjusted df	.016	1	93,945	.921
	Based on trimmed mean	.017	1	94	.916

Based on table 5, it is known that the data The pretest both the experimental group and the control group had the same variance which was confirmed by a significance value of 0.916 which was greater than 0.05. Based on these data, it is concluded that the data are homogeneously distributed.

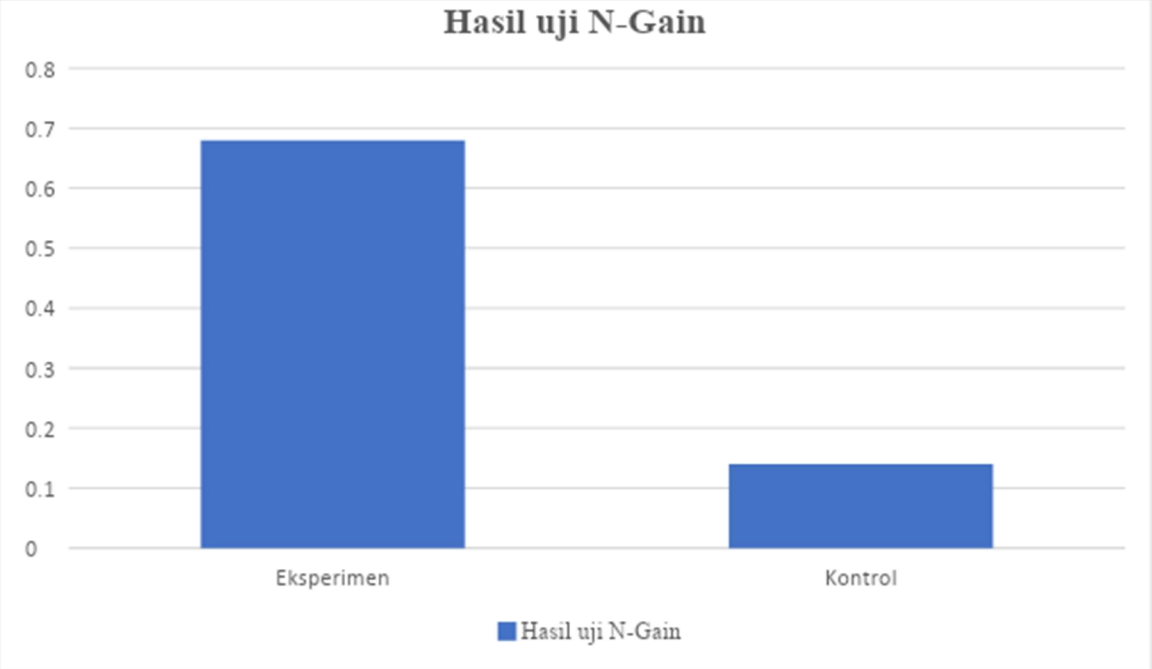
Furthermore, to see if there is a significant effect of using the Android-based Sang Nila Utama digital museum application on the skills of using primary source evidence of high school students in Pekanbaru City in learning history, a hypothesis test was conducted through the t-test.results of the statistical analysis of the t-test are presented in table 6.

Table 6. Description of the t-test statistics

		t-test for Equality of Means				
		t	**df**	**Sig. (2-tailed)**	**Mean Difference**	**Std. Error Difference**
Data Pretest	Equal variances assumed	18.933	94	000	8.933	.366
	Equal variances not assumed	18.933	93.960	.000	8.933	.366

Based on table 6, it is known that the significance value of the t-test is 0.000 or less than 0.05. So it can be concluded that $H0_{is}$ rejected, and H1 is acceptedThus, there is a significant effect of using the Android-based Sang Nila Utama digital museum application on the skills of using primary source evidence of high school students in Pekanbaru City in learning history.

Furthermore, to see how much influence is given, then the N gain test is carried out. The results of the N-Gain test are presented in figure 1.



By following the criteria for the N-gain value as follows:

Interval	Criteria
g 0.7	High
0.3 g 0.7	Middle
g < 0.3	Low

So, for the experimental group, the effect of using the Sang Nila digital museum application is large. The main android-based class is moderate with a percentage of 68%. Meanwhile, the control group using conventional learning media is low with a percentage of 14%. Thus, it was concluded that the application of the Sang Nila Utama digital museum based on Android to the skills of using primary source evidence of high school students in Pekanbaru City in learning history.

Discussion

The research findings show that there is an effect of using the Android-based digital museum application on the students' primary source evidence skills in learning history in high school in Pekanbaru City. This is confirmed by a significance value of 0.000 or less than 0.05. The average posttest score in the control class and the experimental class also showed differences, so it was concluded that there was an effect of giving treatment to the variables being measured. The results of this study support several studies including[18],[19] that the

[18] Sahronih S, Purwanto A, Sumantri MS. The Effect of Use Interactive Learning Media Environment-based and Learning Motivation on Science Learning Outcomes. Int J Educ Vocat Stud. 2020;2(3):1–5.

use of technology-based learning media can increase students' motivation, interest, and learning outcomes. During the COVID-19 pandemic, the use of digital technology can be the best solution for implementing distance learning.

Digital technology-based learning has become the main source and media in learning in the 21st century, especially during the COVID-19 pandemic which limited face-to-face learning in the classroom and required online learning. Digital technology offers various forms and forms with practicality to be used in the learning process. Through digital technology, students can learn independently anywhere and anytime. This is certainly very supportive of the learning process and the development of the potential of students. What's more, if learning materials can be packaged in Android-based applications, of course students will be very interested in learning. This is because almost 90% of students have Smartphones and live in the world of Smartphone technology. So that if the learning material is packaged in an android application, it will greatly support learning at school.

Likewise, when researchers use the Sang Nila Utama digital museum application as a medium and source of learning history for high school students in Pekanbaru City. It is clear that students are very enthusiastic in participating in the learning process so that student learning outcomes increase. Through the application of the Sang Nila Utama digital museum, students can see various sources of local history of the Riau province which are packaged in the form of digital technology. Through the android, students can easily surf to search, find, and identify various sources and relics of the past in the Sang Nila Utama digital museum application. When students surf the Sang Nila Utama digital museum application on their Android, they will involve reading, using, and analyzing local historical sources or relics that are able to activate their historical thinking skills through virtual research activities. Several studies have also shown that digital museums can improve students' skills in historical research thereby encouraging the development of higher order thinking skills [20], [21]. In addition, through the digital museum application, which is the main value, students are also trained to develop independence and digitalization skills.

Digital technology can provide personalized education based on each student's learning abilities. Students can receive immediate feedback on their ability assessment. Rockinson-Szapkiw et al. showed that students who used digital-based teaching media for educational courses had significantly higher perceptions of psychomotor and affective learning than students who chose to use

[19] Ariesta FW. Effectiveness of E-Learning Media to Improve Learning Outcomes Natural Science in Primary Schools. J Educ Res Eval. 2019;3(2):88.
[20] Ambusaidi NA, Al-Rabaani AH. The Efficiency of Virtual Museum in Development of Grade Eight Students' Achievements and Attitudes towards Archaeology in Oman. Int J Educ Res Rev. 2019;4(4):496–501.
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conventional teaching materials [22]. This finding is consistent with previous research that students who use digital teaching media have a higher interest in learning than students who use conventional teaching media.

The use of digital/electronic teaching tools can increase the effectiveness of learning because it allows students to be actively and creatively involved in the learning process, because the teaching tools are equipped with various interesting simulations or animations as well as virtual experimental designs that can lead students to be involved or experience the science process; (2) The use of digital/electronic teaching devices can increase the efficiency of independent learning on the part of students as long as a computer is available to run it. The presentation of digital/electronic teaching materials is different from printed teaching materials. Presentation of teaching materials in digital/electronic form can provide a lot of convenience and interest. Based on the discussion above, it is concluded that the use of digital technology such as the Android-based Sang Nila Utama digital museum application increases student interest and motivation in learning so as to encourage the development of student potential.

Penutup

Application of the Android-based Sang Nila Utama digital museum to the skills of using primary source evidence of high school students in Pekanbaru City which was confirmed by the t-test significance value of 0.000 or less than 0.05. Students in the experimental group who studied using the Sang Nila Utama digital museum application had better learning outcomes than the control group who studied with conventional learning media. This is influenced by the applications that are displayed encouraging students to be actively involved with historical sources and relics. Applications based on Augmented Reality are able to create an interesting, fun learning atmosphere, and make students feel like they are actually exploring the main indigo museum. So the researchers recommend this application for teachers and students to be used as a medium for learning history in high school, especially those related to the local history of Riau Province. Although this research has a good impact on student learning outcomes, of course this research still has limitations among research subjects consisting of only one school. In the future, it is hoped that this application can be disseminated and tested on a larger sample so that the results are truly valid, reliable, and accurate.

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