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Transformation of History Learning in the Digital Era: Application of Riau Local History as an Interactive Educational Media

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ABSTRACT

This project aims to create an interactive teaching tool for studying local history, particularly Riau history, using digital technology. The transformation of learning driven by technological developments in the digital era has raised the need for more interesting and relevant learning methods that meet the needs of today's students. The developed application, Riauxplore, integrates multimedia features such as videos, animations, and interactive quizzes to increase students' interest in learning about local history. Research and Development (R&D) using the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) Model is the research methodology employed. The test involving grade VII students was carried out at SMPN 1 Tempuling, Riau. The Paired Sample T-Test results showed a significant increase in students' interest in learning using the Riauxplore application with a Sig. (2-tailed) value of 0.000, less than 0.05, so H0 was rejected, and Ha was accepted. The average pre-test score of students in the experimental class was 70.56, and the post-test was 84.12, which showed an increase of 13.56. In addition to giving pupils a deeper understanding of local history, this application aids in accomplishing the Sustainable Development Goals (SDGs), particularly those related to high-quality education and cultural preservation. This application provides an innovative way of learning that integrates technology with local history materials. By providing easy access to relevant history learning resources, the app supports a more inclusive and equitable educational process.

Keywords: *Learning Transformation, Riauxplore Application, Local History, Interactive Educational Media*

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INTRODUCTION

The evolution of digital technology has impacted significant changes in how humans learn and obtain information, including in the world of education. Fundamental changes in education have occurred in tandem with the quick advancement of technology. This has become increasingly evident since the COVID-19 pandemic hit, which caused the learning process to adapt through learning using online platforms (Fahruddin et al., 2025; Muthuprasad et al., 2021; Khotimah et al., 2024). The transformation of learning and education is not only limited to the use of technology tools but has encouraged changes to strategies in learning that are more interactive and support sustainable development (Boström et al., 2018; Friedman, 2022; Sugiarto & Suhono, 2023).

The transformation of learning will open up new opportunities for the development of a more interactive teaching and learning process, leading to new ways in the world (Van Schalkwyk et al., 2019; Yacek et al., 2020; Muktamar et al., 2024) and relevant in facing the demands of education and overcoming the educational challenges that arise today. According to (Mulyani & Haliza, 2021), In the era of science and technology development like today, the development of 21st-century skills that are urgently needed by students in the future, such as critical thinking skills, creativity, communication, and collaboration, are essential for future generations (Lapcharoen, 2021; ElSayary, 2024). Therefore, learning is required to carry out a very rapid transformation; using information and communication technology in the teaching and learning process is one way to do this.

Education, which previously relied heavily on conventional methods such as face-to-face in the classroom and the use of textbooks, is now required to adapt to the presence of digital technology that can present learning resources in a more dynamic, interactive, and flexible manner to be used in the learning process, including history learning. According to Sepriady (2018) , In the teaching and learning process, teachers must find alternatives in teaching and learning activities to allow Shiva to have an effective learning process and find results by the expected goals. According to Aulia (2023), History learning is often considered a static subject and is not in demand by students because teaching methods tend to be textual, rigid, and less interesting. Many students are wrong in giving a paradigm to history learning, which is considered boring (Muhtarom, 2023; Rahadian & Setiawan, 2021). Because of this, many students struggle to comprehend and value history, particularly local history, relevant to their everyday lives. Learning local history can also build collective memory in students (Chalimi, 2024). However, local history learning often does not get a sufficient portion of the curriculum. Hence, the younger generation is less familiar with their surrounding environment's rich history and culture.

History learning has a big challenge in growing and maintaining students' interest in learning so that it is more real. This impacts the low interest of students in learning history, especially local history, which has high relevance in shaping the cultural identity and character of the younger generation. According to Brahmantyo & Sukardi (2024), Local history shows two main elements: locality and the communities that inhabit it. Therefore, innovations are needed in learning methods that integrate local history with more interesting and relevant approaches to today's students. Educators should create a student-centered learning situation so that constructing student knowledge can be carried out properly (Matui, 2024).

This research is essential to answer the challenges of transforming history education in the digital era, especially in strengthening students' understanding of local history. Local history education has a strategic role in building the younger generation's cultural identity and historical awareness. However, local history materials often receive less attention in the curriculum and learning media. This research seeks to present students with more interactive, relevant, and engaging history learning by utilizing digital technology. This is in line with the needs of modern education that focuses on knowledge transfer and the development of 21st-century skills, such as critical thinking, creativity, and digital literacy.

This study has a fundamental difference from several previous studies that discussed history learning media. For example (Farianto et al., 2021) examining the use of Augmented Reality applications for the introduction of historical objects of the Soesilo Soedarman Museum and ARBook-based applications for Indonesian history

(Hermawan et al., 2021), the use of Augmented Reality to tell the story of national heroes such as Ir. Sukarno (T. A. Putri et al., 2021) , while this research focuses on local historical objects in Riau. Meanwhile, research by Fatmawati (2023) develop an E-module-based history module in which there are selected materials, images, and youtube videos without adding local history content of the region. This is also in line with research from Putri & Hastuti (2020) explore the integration of learning videos, but do not specifically highlight the locality dimension. This research is also different from the work A. B. Wijaya & Suyanto (2017) which focuses on gamification and historical Ludo game gameplay integrated using the Powtoon application (Felia et al., 2022), So it is very necessary to redevelop by presenting material-based applications on interactive approaches and local content, as well as research (Latuni et al., 2023). Those who discuss the digitization of cultural heritage tend to focus on preservation, not on the context of learning.Thus, this research fills the research gap by integrating local history as an interactive media that cancan support quality education and the preservation of local culture.

As one of the provinces in Indonesia that is rich in history and culture, it has much important local history to learn, ranging from the history of the Riau Malay Sultanate to the important role of this area in Malay trade and culture; many historical values have not been fully explored in formal education materials. The solution that can be done is the development of interactive learning applications that utilize digital technology as an educational medium for students (Rachmawan & Sela, 2024; Mulyano et al., 2024; Siringoringo et al., 2024; Fitriani, 2024). Developing android-based learning media is expected to provide new inspiration for students in receiving monotonous and difficult-to-understand historical material (Huda, 2022; Purba et al., 2024; Swimbawa et al., 2023). This application not only functions as a means of delivering material but also as a tool that can optimize the potential of local history, such as Riau history, so that it is better known and appreciated by the younger generation. Through an interactive approach, this learning app can stimulate students' interest in history while strengthening their character and identity as part of the local community. By utilizing digital technology, local history materials can be presented more interestingly, such as animations, videos, and interactive simulations, so that learning becomes more meaningful and easy for students to understand (Sundran et al., 2024; Laili et al., 2022; Wijaya et al., 2022; Budiarti et al., 2023).

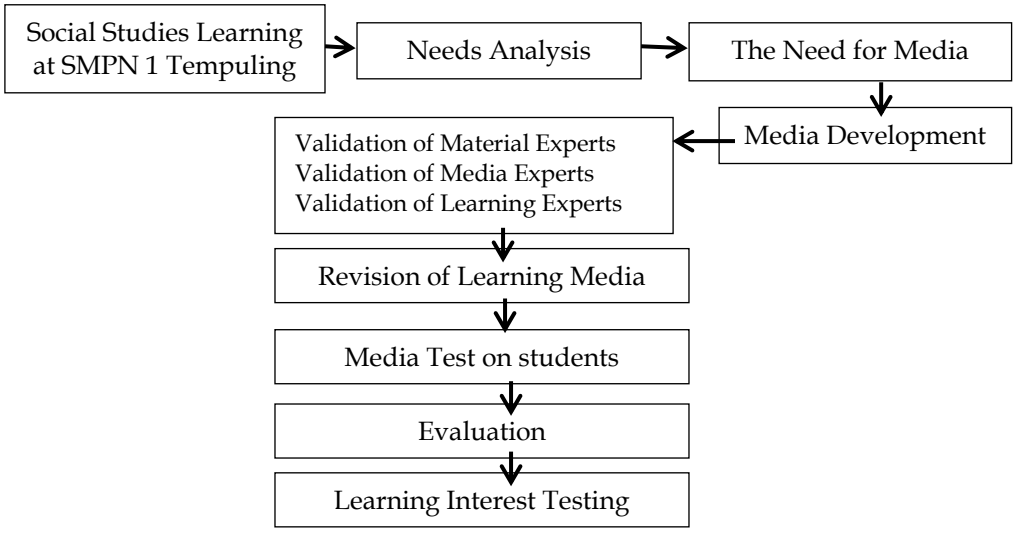
The problem in this study is how to create a learning application and whether it impacts students' increased interest in learning history. The researcher is interested in creating a local history learning application. This study aims to develop a Riau local history learning application as an interactive educational medium and analyze the influence of its use on increasing students' interest in learning history. This study will help students discover an efficient method of using digital technology to deliver local history content in a way that is more engaging and understandable. This research will advance digital literacy in education and the science of technology-based learning approaches, particularly in history courses. The transformation of history learning through digital technology aligns with efforts to improve digital literacy among students and support the government's vision for the development of technology-based education. Therefore, this research focuses on developing Riau local history applications as interactive educational media, which is expected to transform history learning in the digital era positively.

METHOD

The researcher carried out a series of systematic procedures and steps in carrying out this research process. This research activity cannot be separated from collecting research data to obtain the needed data. According to Briliana et al., (2024), Data collection techniques are part of the systematic procedure in the research; in this study, the researcher uses Documentation, Observation, Interview, Literature, and Questionnaire techniques. Documentation is carried out to collect records, archives, and research documentation (Yasin et al., 2024), Meanwhile, the researcher's observation was carried out to learn firsthand the situation and problems at the research location (Wulandari & Juhardi, 2024). In this study, an interview process was also carried out, which aimed to ask respondents directly about the problems found (Rumina, 2024), and Literature Studies were conducted to collect data and information through literature relevant to the research (Sundari & Fauziati, 2021).

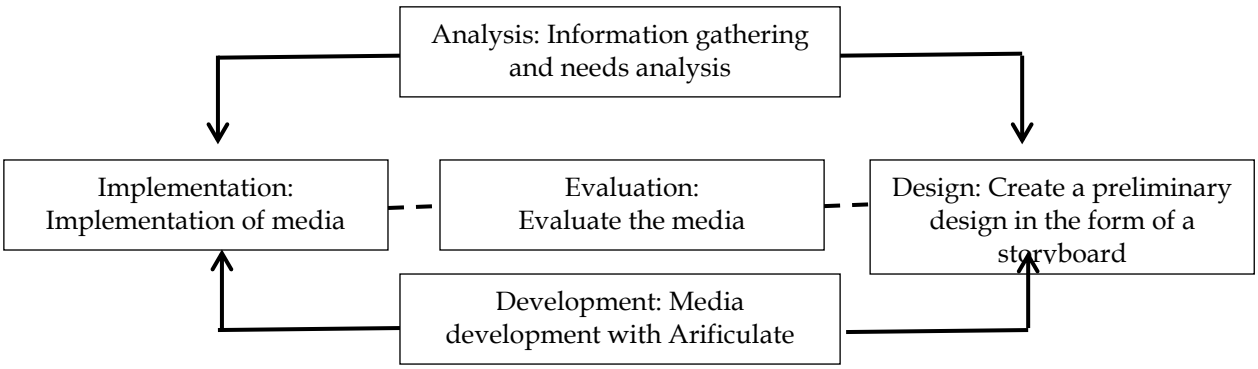
The process of implementing this research will be carried out from August to December 2024, which will be carried out at SMPN 1 Tempuling Riau in the Integrated Social Sciences Subject Class VII. Mrs. Armatini Anwar, S.Pd, a social studies subject teacher, accompanied this research. In collecting data on students' learning interests, the researcher also used a Likert Scale questionnaire. The excitement was developed from the Student Learning Interest Indicator. According to Sugiyono (2017), The Likert scale used to measure attitudes, opinions, and perceptions about social phenomena uses 5 points of the Likert scale: 1 = Strongly Disagree (STS), 2 = Disagree (TS), 3 = Disagree (KS), 4 = Agree (S), 5 = Strongly Agree (SS).

Figure 1. Mindset



Based on this framework of thinking, it is necessary to innovate learning development. Therefore, this research includes development research that will develop learning applications. According to Ridwan & Fransisca (2024) , there are three research objectives: discovery, proof, and development. This study uses the Research and Development (R&D) research method with the ADDIE Model. According to Syahid et al (2024) , the ADDIE (Analysis, Design, Development, or Production, Implementation, or Delivery and Evaluations) model is used. The steps to develop the ADDIE model are as follows:

Figure 2. ADDIE Development Model



At the data analysis stage in this study, the researcher first tested the research instrument through the Validity and Reliability Test of the instrument in the form of a questionnaire using the SPSS.26 application. The Validity Test uses the Pearson Product Moment Correlation Formula with the results of the test if the value of r calculates > r table, then the instrument can be said to be valid; the Reliability Test in this study uses Cronbach' Alpha Formula Formula Test (α). Meanwhile, the test of the influence of learning media on student interest was carried out by the Quasi Experiment Method with the model of "Non-equivalent control group design," using two classes, namely an experimental class and a control class. In the Experiment class, treatment was given in the form of using the Riauxplore Application in learning. The following is an overview of the design:

Figure.3. Efficacity Test Process

Class	*Pretest*	*Treatment*	*Posttest*
KE	O_1	X_a	O_2
KK	O_3		O_4

After that, the study's data was examined for requirements using the Normality Test, which uses the Kolmogorov Smirnov Formula (K-S). If the Sig Value is more than 0.05, the data in this study is considered to have a normal distribution. Additionally, the researcher used SPSS.25 to perform a Homogeneity Test. The T-evaluate Paired Sample Test and the Independent T-Test were used to evaluate the hypothesis in this study. If the results were 0.000 < 0.05, then H0 was rejected and Ha was accepted.

RESULT AND DISCUSSION

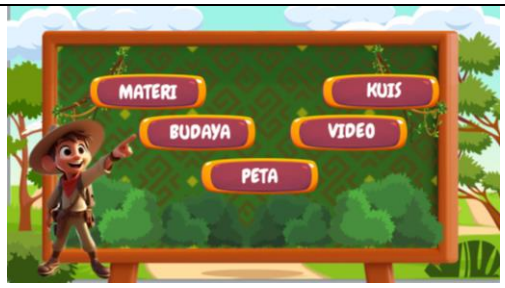
Riauxplore Application Development

The development of the Riauxplore application is an innovative step in supporting the transformation of local history learning in the digital era. This application is designed with the aim of presenting Riau history material in an interactive and interesting way for students, so that it is able to increase their interest and involvement in the learning process. The features provided in Riauxplore such as multimedia content, historical materials, interactive quizzes, as well as gamification elements, allow students to gain a deeper understanding of local history through contextual and relevant learning experiences. The development of the Riauxplore application using Articulate Storyline with the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model is a systematic approach to create an effective interactive learning experience. The process involves five main stages:

1. Analysis
   At this stage, a needs analysis is carried out to determine the learning objectives, user profiles (students), and local historical content that will be included in the Riauxplore application. Important materials such as historical figures, local events, and traditional culture are identified. In addition, technical and pedagogical needs, such as the availability of technological devices and students' learning styles, are also analyzed to ensure that the app is accessible and beneficial to the target audience.
2. Design
   The design stage focuses on designing the application in detail. Using Articulate Storyline, developers define interactive learning flows, scenarios, and content organization. The design includes a navigation structure, the selection of visual elements such as images and videos, and the integration of interactive features such as quizzes and historical simulations. At this point, the learning objectives are taken into consideration while developing the multimedia components.
3. Development
   In the development stage, the content that has been designed is then implemented in the Articulate Storyline platform. The developers created various multimedia and interactive elements based on the pre-arranged designs. Features such as drag-and-drop interactions, interactive videos, and quizzes are made and tested within the Storyline environment to ensure everything works properly. An initial prototype of the application is then created, which allows for revisions before the final version is released.
4. Implementation
   The Riauxplore application was available to instructors and students throughout the implementation phase. At this stage, users are given guidance on how to use the app and begin to use it as part of the history learning process. Teachers are also involved in this process to ensure that the app is used by the curriculum implemented. Technical support is provided to resolve any technical issues arising during use.
5. Evaluation
   Evaluation is the final stage and is carried out on an ongoing basis. There are two types of evaluation: formative and summative. Formative evaluations are carried out during development and implementation to correct any shortcomings or problems found. Meanwhile, a summative evaluation is carried out after the application is applied to assess the overall effectiveness of the application in increasing students' interest in and understanding of local history.

The creation of Riauxplore can be organized by adhering to the ADDIE paradigm, which guarantees that the finished application will not only satisfy educational requirements but also give students an interesting and dynamic learning experience. The History Learning Application, specifically the Riauxpolre Application, is the outcome of this research's development. The application's features include the following:

Table 1. Riauxplore App Display

No	App View	Information
1		The first screen that appears when using the application is the Riauxplore Application Home Display Menu.
2		The Riauxplore Application Fill Menu contains buttons to other menus.
3		The Map menu is a display of location options that students will explore
4		The Video menu contains learning videos about local history in Riau
5		The Material Menu contains information on the history of Riau

		The Material Menu contains information on the history of Riau

Source: 2024 Researcher Documentation

The Riauxplore app has an intuitive and user-friendly layout. Its various main parts provide several interactive features accessible. In the Main Menu section, users are greeted with clear navigation options, including access to a browsing map, historical materials, interactive games, and learning videos. The Exploration Map is a unique feature that displays important areas in Riau's history, allowing users to explore these locations virtually. Each point on this map is connected with relevant historical information, providing an engaging location-based learning experience. The Historical Materials section presents in-depth content about Riau's events, figures, and cultural heritage. Students will find it easier to comprehend the historical background overall because of the material's chronological and thematic arrangement. Interactive Games are features designed to increase student engagement through educational challenges and quizzes. With gamification elements, students can test their understanding of Riau's history in a fun atmosphere. Finally, Learning Videos provide audio-visual content that explains historical topics in-depth, complemented by interesting narratives and visual illustrations, thus helping students understand the material more dynamically.

Analysis and Presentation of Research Data

The researcher analyzed the research data that was tested in stages. The researcher uses several specialists to verify the developed instruments to guarantee their validity and reliability. The three primary components of this validation are validation by specialists in learning media, learning materials, and learning implementation. Each expert provided valuable input on the suitability of the content, readability, and the instrument's effectiveness in measuring aspects of student learning interest. Learning media experts focus on the display and affordability of the media used in the research process, ensuring that the media supports the research objectives well. The subject matter expert reviews the substance of the questions asked to ensure they are appropriate to the topic discussed. In contrast, the learning implementation expert evaluates the application of the instrument in the context of the actual learning process. The following are the results of the experts' assessment:

Table.2. Expert Assessment

Learning Media Specialist					
No	Indicators	Total Value	Statement Number	Average	Classification
1.	Text Readability	14	1,2,3	4,6	Excellent
2.	Image Quality	9	4,5	4,5	Excellent
3.	Audio Quality	8	6,7	4	Good
4.	Media Usage	17	8,9,10,11	4,25	Excellent

5.	Media Benefits	10	12,13	5	Excellent
Total Value		**58**		**4,46**	**Excellent**
Material Expert					
1.	Quality of Content and Purpose Learning	23	1,2,3,4,5	4,6	Excellent
2.	Instructional Quality	16	6,7,8,9	4	Excellent
3.	Language and Typography	9	10,11	4,5	Excellent
Total Value		**48**		**4,36**	**Excellent**
Learning Implementation Members					
1	Text Readability	14	1,2,3	4,6	Excellent
2	Image Quality	8	4,5	4	Good
3	Audio Quality	8	6,7	4	Good
4	Media Usage	19	8,9,10,11	4,75	Excellent
5	Media Benefits	10	12,13	5	Excellent
Total Value		**59**		**4,5**	**Excellent**
1	Quality of Content and Purpose Learning	21	1,2,3,4,5	4,2	Excellent
2	Instructional Quality	17	6,7,8,9	4,25	Excellent
3	Language and Typography	9	10,11	4,5	Excellent
Total Value		**47**		**4,27**	**Excellent**

Source: Researcher Data Processing in 2024

Mrs. Citra Rafika Utari, S.Pd., M.Pd., a media specialist, provided an evaluation with an average score of 4.46 and a score of 58. According to (Eko, 2009) , criteria state that a score of x > 4.20 falls into the very good group. As a result, the evaluation is rated as excellent. Dila Wedyanida Futrie, S.Pd., M.Pd., the material expert, assigned a score of 48 with an average of 4.36, falling into the very good category. Furthermore, the learning implementation expert, Mrs. Armatini Anwar, S.Pd., gave a media assessment with a score of 56 and an average of 4.5, as well as an evaluation of media materials with a score of 47 and an average of 4.27, both of which were included in the very good category. Experts provide constructive input and suggestions to improve the quality of learning media. Media experts propose improvements in visual aspects and interactivity to make them more engaging for students. In contrast, material experts suggest improvements to the clarity of content and the suitability of the material to learning objectives. In addition, learning implementation experts recommend adjusting the delivery format to make it easier to apply in the classroom context.

Researchers conducted tests on 20 questions designed to measure students' interest in learning. The results of this trial will provide a preliminary overview of the instrument's reliability as well as potential for further adjustments before it is widely used in major research. Using the SPSS.25 application, the researcher performed a reliability test using Alpha Chronbach and a validity test using the Product Moment Correlation method. While the reliability test looks at the instrument's accuracy and consistency, the validity test aims to determine the instrument's validity. The test findings are as follows:

Table.3. Validity and Reliability Test Results

No	Uji	Hasil Uji	Keterangan
1	Validity	*R-count* on 20 questionnaire items > 0.396	20 Valid Items
2	Reliability	*Cronbach's Alpha* = 0,852	Very High Category

			Questionnaire

Source: 2024 Data Processing Results

All 20 of the learning interest instruments that were examined were deemed legitimate, according to the findings of data analysis done using SPSS version 26. The value of r-count, which is higher than the r-table (r-count > r-table), is used to determine this validity. According to the opinion Erida (2021) , if the R-count value exceeds the R-table, then the instrument can be considered valid. In addition, the reliability test showed a Cronbach's Alpha value of 0.844, which, according to Arikunto (2019), is included in the very high category. This shows the consistency of the research instrument so that it is suitable for use as a measurement tool in research.

This study was conducted with social studies students at SMPN 1 Tempuling, Riau. Two classes participated in the study: a control group of 25 students who used traditional learning materials and an experimental group of 25 students who used the Riauxplore application. Data was collected through pre-tests conducted before the implementation of the intervention, as well as post-tests conducted after the application of learning media or applications. After all the data was collected, the researcher analyzed the research data. Before the main analysis, the researcher applied a prerequisite test, including a Normality Test and a Homogeneity Test. The Normality Test aims to find out whether the data distribution is normal, while the Homogeneity Test is carried out to test the uniformity of data variance. The results of the prerequisite test are as follows:

Tabel.4. Uji Normalitas dan Homogenitas

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	Statistic	df	Sig.	Statistic	df	Sig.
Result	Pre_Test Eksperimen	.090	25	.200*	.965	25	.521
	Post_Test Eksperimen	.124	25	.200*	.972	25	.706
	Pre_Test Kontrol	.157	25	.113	.940	25	.150
	Post_Test Kontrol	.156	25	.120	.974	25	.741

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Result

Levene Statistic	df1	df2	Sig.
1.640	1	48	.206

Source: Researcher Data Processing in 2024

The Asymp value was determined using the data analysis results shown in Table 4. The experimental and control classes' pre-test and post-test data showed a sig. (2-tailed) of 0.200, which was higher than 0.05 (0.200 > 0.05). In order to proceed with the test utilizing the Paired Sample T-Test, it may be concluded that the study data is normally distributed. The Independent Sample T-Test may be used since the homogeneity test's significance value of 0.206 was higher than 0.05 (0.206 > 0.05), indicating that the data is homogenous. In order to assess the impact of utilizing the Riauxplore Application on students' learning interests, hypothesis testing was done in this study using the T-Test, specifically the Paired Sample T-Test and the Independent Sample T-Test. The following is the study's hypothesis:

Ho : There is no positive and significant influence of the use of the Riauxplore Application on Student Learning Interest

Ha : There is a positive and significant influence of the use of the

Riauxplore Application on Student Learning Interest

The following findings were derived from the researcher's data analysis, which was carried out using the SPSS.25 application:

Table.5 Test Paired Sample T-Test

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre-Test Eksperimen - Post-Test Eksperimen	-13.560	6.111	1.222	-16.082	-11.038	-11.095	24	.000
Pair 2	Pre-Test Kontrol - Post-Test Kontrol	-2.600	4.052	.810	-4.272	-.928	-3.208	24	.004

Source: Researcher Data Processing in 2024

Based on the results of the T-Test Paired Sample Test in Table 5, it can be seen that the value obtained by Sig. (2-tailed) this study is 0.000 < 0.05, so H0 is Rejected, and Ha is Accepted. Therefore, the Riauxplore Application significantly influences students' learning interests. The researcher also conducted a test with the Independent Sample T-Test to find out the difference in impact on each class:

Table.6. Independent Test T-Test Sample

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Hasil	Equal variances assumed	1.640	.206	8.294	48	.000	8.280	.998	6.273	10.287
	Equal variances not assumed			8.294	43.652	.000	8.280	.998	6.268	10.292

Source: Researcher Data Processing in 2024

The test's findings indicate that the Sig. (2-tailed) value is 0.000 for the Equal Variances component. The experimental and control classes differ significantly in terms, as indicated by the Sig. (2-tailed) of 0.000 < 0.05. Based on the average score, the results showed that the experimental class had a higher value for learning interest. Additionally, the following quantitative descriptive findings support the test:

Table.7. Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Test Eksperimen	25	60	82	70.56	6.338
Post-Test Eksperimen	25	78	89	84.12	2.920
Pre-Test Kontrol	25	60	81	73.24	5.286

Post-Test Kontrol	25	67	84	75.84	4.048
Valid N (listwise)	25				

Source: Researcher Data Processing in 2024

The aforementioned test results indicate that the experiment's average score in the Pre-Test Control was 70.56 and in the Post-Test Control was 84.12, marking a 13.56 increase, while the Control Class's average score in the Pre-Test Control was 73.24 and in the Post-Test Control was 75.84, indicating a 2.6 increase. After comparing the two, the Experimental Class's use of the Riauxplore Application has a bigger impact on their interest in learning than the Control Class's.

The Effect of the Riauxplore Application on Students' Learning Interest

The transformation of history education is very important in the midst of rapid technological advances today (Saputra et al., 2024). One of the impacts caused is the emergence of newness and innovation in the conventional learning process towards a more modern system. This encourages transformation in the learning and education process. In transformative learning, the process carried out is not only the result of learning based on students' previous life experiences (Moran, 2022, Darti et al., 2023), but also through being faced with an unfamiliar situation, so that it can become an increasingly valuable experience (Nada & Legutko, 2022). This illustrates knowledge that is practically useful for society and not only for certain groups (Syaharuddin et al., 2022), Additionally, it facilitates students' active participation and engagement with ideas that are given within the framework of their own lives (Schnepfleitner & Ferreira, 2021 ;Wang et al., 2021).

One form of technology-based learning is educators who carry out digital learning trends (Akviansah et al., 2022). The development of the Riauxplore Application is part of the transformation process in history learning in the digital era. This application, designed to facilitate local history learning in Riau, is an interactive medium allowing students to easily and interestingly access the material. Based on the theory of learning motivation, innovative technology can increase students' interest in understanding the material, as applications such as Riauxplore offer a more personalized learning approach and align with modern learning styles. By integrating various multimedia features, such as images, videos, and interactive historical simulations, students not only passively obtain information but are also invited to participate actively in the learning process (Nirmala et al., 2024; Handayani et al., 2024; Safitri et al., 2024).

This app influences students' interest in learning by providing a more contextual and relevant learning experience to their daily lives. The learning experience can be enhanced by contextualizing learning so that students can better connect new knowledge with their current foundation (Firat et al., 2023), membangun konseptualitas yang dipengaruhi oleh pengalaman sebelumnya seperti konteks sosial atau budaya sehingga juga dapat menjadi lebih bermakna (Holbrook et al., 2022; Palmer, 2005; Zeidler et al., 2005). In the constructivist approach, teachers only function as facilitators, and students are more active in seeking information on their own to shape their knowledge and learning experiences (Manurung et al., 2024). Students can see firsthand the connection of local history to their cultural identity, which ultimately deepens a sense of curiosity and emotional involvement in the learning process. In addition, Riauxplore also allows students to study independently, set their own study time, and gain access to information outside of school hours, all of which contribute to increased intrinsic motivation. The increase in students' interest in learning through the

Riauxplore application is also closely related to gamification in learning. Interactive features such as quizzes, challenges, and digital rewards integrated into the app can provide more stimulation for students and increase students' interest in continuing to learn and explore the material in depth (Sari & Prasetyo, 2024). With a positive competitive element, students are encouraged to achieve better results and repeat learning voluntarily. Thus, the Riauxplore application enriches the material and fosters a sense of ownership over the learning process. The Riauxplore application provides opportunities for students to learn with a student-centered learning approach. In this context, students become active subjects with greater control over their learning process. They can determine the topics that interest them the most in Riau history, study the material at their own pace, and explore aspects of history relevant to their interests. This method is in line with constructivism theory, where learning occurs when students build their understanding through experience and interaction with the material presented (Febrian, 2024). Thus, Riauxplore supports more personalized and meaningful learning.

The ease of access to learning materials through Riauxplore allows students who may have previously had limited access to adequate historical resources to learn in a more interactive and effective way. The app also supports collaborative learning. The information sharing and discussion features in Riauxplore encourage students to work together in solving historical problems, discussing, and exchanging perspectives on local historical events. This collaborative learning enriches students' learning experience and helps them develop social skills as well as critical thinking skills. However, on the other hand, it is also necessary to pay close attention to activities during the learning process with the application while still considering associative, cognitive, and situational learning methods in digital-based learning (Yi Cheng et al., 2024).

Through interaction with peers, students are invited to think analytically and consider various points of view in understanding history, increasing their involvement in the learning process and understanding the influence of the Riauxplore application on students' learning interests. Based on the T-Test Paired Sample Test findings in Table 5, it is evident that the study's Sig. (2-tailed) value is 0.000 < 0.05, meaning that Ha is accepted and H0 is rejected. Thus, the Riauxplore Application greatly impacts students' interest in studying. The average score of the experiment in the Pre-Test Experiment was 70.56, and in the Post-Test Experiment was 84.12, so there was an increase of 13.56. the Control Class had an average score in the Pre-Test Control 73.24 and the Post-Test Control of 75.84, so there was an increase of 2.6. When comparing the two, using the Riauxplore Application in the Experimental Class has a greater influence on learning interest than in the Control Class. The development of the Riauxplore application is closely related to achieving the Sustainable Development Goals (SDGs), especially in the SDG 4 target on quality and sustainable education. The app integrates local history education with digital technology, allowing students to learn in a more interactive and relevant way to their lives. In the context of appreciation for local wisdom, Riauxplore plays a role in preserving and introducing Riau's cultural and historical values to the younger generation, which aligns with efforts to maintain cultural identity in the era of globalization.

DISCUSSION

This study found that the application of Riauxplore in learning significantly increased students' interest and involvement in learning history and appreciation of Riau's local history. The application has interactive features such as maps of Riau's local history, Learning Videos, Materials, and interactive quizzes that allow students to learn independently and collaboratively. The development of this digital technology-based application is relevant to the times and encourages active participation in learning. Therefore, this application can be an innovative solution to bridge the gap between conventional learning and expectations in the modern education era.

This study has significant differences compared to previous findings. As research by Zulaeha & Sarwi (2014), it only focuses on the development of text-based teaching materials, while this research integrates digital technology and interactivity. Meanwhile, the work Saputri dkk.(2024) exploring gamification in history learning but not focusing on local history but having a positive influence on the motivation to learn history. Moreover, Gozali & Marlina (2023) which developed an app for national history for hero name recognition includes Augmented Reality-based multimedia elements. These findings are also different from studies by Widjajanto (2024) which only uses learning videos without the direct involvement of students through interactive features. Thus, this research fills a gap in the literature by focusing on the digitization of local history through a holistic and innovative approach.

The use of Riauxplore interactive digital applications in history learning significantly influences students' learning interests. The app transforms how students interact with historical materials from traditional text-based methods to a more dynamic and contextual learning experience. In the digital era like today, students are more motivated when learning using technology that is relevant to their daily lives (Suryana et al., 2025; Firmansyah, 2024; Saidina et al., 2024). The interactive features in the app, such as adaptive quizzes, historical simulations, and multimedia, can increase students' curiosity about historical topics (Syilviana & Qurrotani, 2024;Yeni Maulidah et al., 2023; Siddik & Mahariah, 2023). The integration of multimedia elements in history learning using the Riauxplore Application is able to strengthen students' attention and help them understand complex concepts better. This is reinforced by the findings (Badrudin, 2023;T. Wijaya & Ediyono, 2022) which shows that gamification-based learning media significantly increases students' interest and motivation in learning compared to conventional methods.

Digital-based apps like Riauxplore also give students the freedom to learn independently at their own pace. According to Fajri & Indriani (2023), Technology-based learning supports self-regulated learning, which is essential in increasing student interest and engagement; students are more enthusiastic about learning history. Research by (Nurjannah et al., 2025; Andriani et al., 2024) shows that the use of technology in learning not only increases interest but also creates a more meaningful learning experience, as well as being able to make an immersive learning experience, thus attracting the attention of students who were previously less interested in the subject. This application is not only relevant to the needs of students in the digital age, but it is also capable of integrating elements of local history. Therefore, a well-designed digital application has the potential to be a catalyst in significantly increasing students' interest in learning history.

The results of this study have important implications for education and cultural preservation. Other schools can adopt this application to help improve the quality of

history learning in different regions. Besides that, this research can expand the conceptual framework regarding the use and integration of technology in history education and learning so that it is more explored. This contributes to the implementation of SDG 4 (Quality Education) and SDG 11 (Local Culture Preservation) by creating innovative and sustainable learning media about local history in a region. This study has several limitations, including the limited geographical scope of the research in the Riau region, which can reduce the generalization of findings for other contexts in Indonesia. In addition, research methods that emphasize quantitative aspects have not fully explored the student experience qualitatively in using the application; limitations in access to technology in some schools can also affect the effectiveness of the implementation of this application. Therefore, it is necessary to re-explore the development of similar applications in the context of local history in other regions of Indonesia to gain deeper insights into more immersive student and teacher experiences.

CONCLUSION

The study's outcome attests that the Riauxplore application significantly raises pupils' interest in studying history. By utilizing innovative digital technology, this application presents Riau's local history materials interactively and interestingly, which positively impacts student motivation and involvement in the learning process. The value obtained by Sig. (2-tailed) this study is 0.000 < 0.05, indicating that Ha is accepted and H0 is rejected, according to the T-Test Paired Sample Test results. Thus, the Riauxplore Application greatly impacts students' interests in learning. The results of the statistical test show that it can be known that the average score of the Pre-Test Experiment is 70.56 and the Post-Test Experiment is 84.12, so there is an increase of 13.56, and the Control Class has an average score in the Pre-Test Control of 73.24 and the Post-Test Control of 75.84. Hence, there is an increase of 2,6. Implementing features such as quizzes, simulations, and multimedia materials improves students' understanding of local history and supports a more personalized and relevant approach to learning. The learning experience offered by Riauxplore shows the great potential of digital technology in creating a more inclusive and adaptive learning environment. In keeping with SDG 4's objectives for high-quality and sustainable education, the Riauxplore app also contributes significantly to increasing educational accessibility and conserving indigenous knowledge. By introducing elements of local culture in modern learning, this app helps students better appreciate and understand their cultural heritage. It also contributes to the development of local identity and the integration of cultural values in education, an important aspect of learning in the era of globalization.

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AUTHOR CONTRIBUTION STATEMENT

This research results from a collaboration of several authors with different roles. SC led the development of research concepts, data collection in the field, testing of the Riauxplore application in the field, and documentation of research results. The AS. is responsible for the design of the methodology used, the preparation of references, and the review of literature. AF manages the technical aspects of application development, including interactive and multimedia features and data analysis. All authors contributed to the manuscript's writing, revision, and editing and jointly agreed to the final version for publication.

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