

Digitalization of Differentiated History Teaching Materials Based on Galuh Regents History to Improve Students' Critical Thinking Ability

Miftahul Habib Fachrurozi*¹, Yulia Sofiani¹, Laely Armiyati¹

*Miftahul.habib@unsil.ac.id

¹Universitas Siliwangi

Abstract

This research aims to develop differentiated digital history teaching materials based on Galuh regents' history to enhance students' critical thinking. These teaching materials integrated differentiated learning concepts, including content differentiation, learning style accommodations (visual, auditory, kinesthetic), and products differentiated on students' task projects. This research employs the RnD method and is conducted through the ADDIE model. The subject of the study is a 10th-grade student enrolled in one of the Senior High Schools in Ciamis. Data collection involves interviews, questionnaires, observations, and tests. Data analysis is conducted qualitatively during the analysis and design stages and quantitatively during the development, implementation, and evaluation stages. The research findings are: 1) The current school teaching materials fail to meet students' needs. The teaching materials do not support highly digitised students' diverse learning styles and local historical content. 2) The development process involved expert judgment, receiving a score of 4.6 from the teaching material expert and 4.2 from the content expert. A limited trial yielded a score of 4.07, while an extensive trial yielded a score of 4.52. 3) Effectiveness testing showed an N-Gain of 0.7218 (72.18%), categorized as effective. Based on these findings, The history of Galuh regents holds significant character values in shaping students' cognitive development so it can integrated into teaching materials. Future research should expand on digital local history learning by integrating interactive technology (AR/VR) to support student needs, particularly in digitalization and accommodating diverse learning styles.

Keywords

Critical Thinking, Differentiated Teaching Materials, Digitalization, History Learning, Regents of Galuh

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Introduction

The world is currently entering the era of Industrial Revolution 4.0, which is marked by massive digitalization in all sectors of human life. This also happens in Indonesia, as evidenced by the increasing number of internet users yearly based on data from the Indonesian Internet Service Providers Association (APJII). Internet users in Indonesia 2023 reached 221.5 million people (APJII, 2024). From that number, 34.40% (around 76.2 million people) are the young generation born from 1997 to 2012, classified as Gen-Z, and are now studying in Senior High School. The significant prevalence of internet usage among the young generation has profoundly altered the learning methodologies of students, resulting in an intensification of their learning processes. Consequently, a distinct digital culture has emerged within the education sector (Sari et al., 2020). Digitalization in the education sector continues to increase with the start of the new normal era after the COVID-19 pandemic (Utami, 2020). Digitalization in education is generally implemented through teaching materials (Ningsih, 2021) or learning media (Ferdiansyah et al., 2023).

Regarding the use of digital-based teaching materials, research conducted by Maharani & Zainuddin (2023) shows the positive impact of digitalization on teaching materials for Senior High School students. Digitalization can also address issues in conventional history learning, which is often less pertinent to students' interests and learning requirements (Malysheva et al., 2022). History is a subject that teaches about past events, which not all students are interested in. Learning innovation through the use of interactive and engaging digital media can be a solution to this problem. It clearly shows the urgency of digitalization in the learning process in Senior High School, including in history learning.

On the other hand, the era of Industrial Revolution 4.0. also demands students' mastery of 21st-century competencies. Critical thinking skills are one of the 21st-century competencies most needed in the world of work in the current era (Thornhill-Miller et al., 2023). Critical thinking ability is defined as students' ability to process, analyze and evaluate information obtained through observation and experience based on cognitive and affective aspects (Miterianifa et al., 2021). Critical thinking skills are also part of the Pancasila Student Profile, which is currently being intensively campaigned for by the Ministry of Education, Culture, Research and Technology (BSKAP Kemdikbudristek, 2022). In history learning, critical thinking skills play a pivotal role in analyzing the socio-political context of the past. In line with the learning outcomes (CP) of history learning in the Merdeka Curriculum, students are also expected to interpret and critically analyze information from historical sources and understand the values of past events in the present context. This contextualization is crucial in the learning process, as students must grasp the historical context in the present. This urgency makes critical thinking skills inseparable from history learning in the Merdeka Curriculum.

The implementation of learning in schools must pay attention to the recent curriculum. In Indonesia, the Merdeka Curriculum is currently being implemented. Some of the highlights of the Merdeka Curriculum include: 1) focus on essential material, which gives educators the freedom to develop learning outcomes according to the learning phase; 2) introduce the concept of differentiated learning. And 3) soft skills development through the Strengthening Pancasila Student Profile Project (Ayundasari, 2022). These three elements are crucial in developing teaching materials aligned with the Merdeka Curriculum. Teachers can create learning materials that resonate with students by focusing on essential materials. In the context of history education, history teachers can highlight local history materials that have been overlooked.

Additionally, teachers must develop differentiated learning materials that support students' diverse learning styles, ensuring optimal learning outcomes. Furthermore, the Strengthening Pancasila Student Profile Project serves as a valuable guide for teachers in fostering specific character development in students, including faith in God Almighty, critical thinking, creative thinking, global diversity, independence, and cooperation. These character traits should be the primary focus of the teaching materials developed by teachers.

Differentiated learning is one of the key concepts in the Merdeka Curriculum. Differentiated learning is an instructional technique designed by teachers to meet the diversity of individual student needs, covering learning styles, interests, and understanding of learning material (Maslahah & Maida, 2023). Implementation of differentiated learning includes differentiation of content, processes, and products. Therefore, teaching materials designed in the Merdeka Curriculum must also adopt the concept of differentiated learning.

One subject that has been proven to play an essential role in developing critical thinking skills is history learning (Wardhani et al., 2022). History learning contributes to students' critical thinking process by analyzing historical sources to the existence of controversial historical material that triggers critical awareness (Hartono et al., 2024). History learning in the Merdeka Curriculum should also emphasize local aspects. Research by Lionar & Fithriah (2023) shows local history content can inspire students. Conversely, Teaching local history can increase students' pride in their communities and commitment to civic engagement (Pearson & Plevyak, 2020). Until now, not much local history content has been used to prepare differentiated history teaching materials in schools in the context of the Merdeka Curriculum, including in the Ciamis Regency. Integrating local historical figures in history learning can foster positive student responses (Chalimi, 2023).

When viewed from a historical aspect, the Ciamis Regency, which before 1914 was called the Galuh Regency, has many historical figures, including regents, who played an essential role in the history of this region (Sofiani, 2021). These Galuh regents can be inspirations and role models for today's young generation. For example, one of the greatest regents in Galuh, R.A.A. Kusumadiningrat, is known for being able to be critical of colonial government policies while still upholding local culture (Sofiani & Nurfadillah, 2020). Meanwhile, his son, R.A.A. Kusumasubrata, played a role in people's economic development and progress in the Galuh district at the beginning of the twentieth century (Fahmi & Prasetyo, 2022). It is hoped that the example of the Galuh regents will foster critical thinking skills in high school students, especially in Ciamis. For instance, the success of R.A.A. Kusumadiningrat in opposing the forced cultivation policy without resorting to physical resistance can inspire students to critically examine how the Dutch East Indies colonial government could tolerate this rejection.

Several previous studies found problems related to high school students' low critical thinking skills or those at the same level in Ciamis (Afifah et al., 2020; Parhannudin et al., 2023). Students' low essential thinking abilities can be caused by several factors, including using teaching materials that are less relevant to students' needs (Sumiyati & Nurjannah, 2022). This research is in line with the results of observations and interviews at the research target schools, which show that the teaching materials used are based on government textbooks and are still used conventionally. To solve this problem, digital history teaching materials are needed that adopt the concept of differentiated learning so that the diversity of students' learning styles can be facilitated in learning. Additionally, the content should incorporate local aspects overlooked in government-produced textbooks. By combining digitalization with local history content, we can enhance students' critical thinking skills and foster a sense of pride in their regional history. Using appropriate teaching materials can improve the quality of history learning in high school (Amalia & Sutimin, 2021). On the other hand, the development of teaching materials also needs to consider the character of students who have been digitalized so that learning can run optimally (Syahputra & Yefterson, 2021).

Until now, there has been no research regarding the development of Differentiated Digital History Teaching Materials Based on Galuh Regents History aimed at Senior High School students. Students' understanding of the history of the Galuh regents is crucial, considering the numerous character values that can be explored through these figures. Moreover, introducing students to the complexity of the narrative and the diversity of local historical sources in the Galuh Regency is essential for developing their critical thinking skills. The development of the Galuh regent-based teaching materials that previously existed was aimed more at the University level and was still non-digital (Sofiani et al., 2023).

Apart from that, existing teaching materials do not accommodate differentiated learning, which is relevant to implementing the Merdeka Curriculum. The development of differentiated teaching materials to improve critical thinking skills in the context of the Merdeka curriculum has only been carried out at the elementary school level (Maulida et al., 2024). Based on this background, this research will try to fill this gap by developing a digital teaching material based on the history of the Galuh regents who have adopted the concept of differentiated learning so that it can be used for Senior High School history learning in the Merdeka Curriculum, especially in Ciamis. Hopefully, this digital teaching material product will improve the critical thinking skills of senior high school students in Ciamis to support students' self-development in a way that aligns with the Pancasila Student Profile and 21st-century competencies.

Research Methods

This research uses research and development (R & D) methods to produce and test certain products (Creswell, 2021). The product developed in this research is Differentiated Digital Teaching Materials Based on Galuh Regents History, designed to enhance students' critical thinking skills. The development model used in this research is the ADDIE model, which includes the stages of analysis, design, development, implementation, and evaluation (Rayanto & Sugianti, 2020). The research was conducted at one of the Senior High Schools in Ciamis Regency, which implemented the Merdeka Curriculum during the even semester of the 2024/2025 academic year. The target class in this study was the 10th grade (X-class). The selection of X-class was based on the material's suitability to align with the history Learning Outcomes in the Merdeka Curriculum in Phase-E.

Data collection techniques were carried out in several ways, such as 1) Interviews, which were used at the analysis stage to determine the need for teaching materials in schools. Interviews were conducted with history teachers and X-class students who were selected randomly; 2) Questionnaires, used at the development stage during expert judgment and limited and broad trials using a Likert scale; 3) Observations, carried out at the implementation stage to see the use of teaching materials in the classroom, and; 4) Tests, used at the evaluation stage to measure the effectiveness of teaching materials on improving students' critical thinking skills. The following is a more detailed explanation of each stage in this research:

Analysis Stage

The research team conducted a preliminary study to assess the need for school teaching materials. The data will be gathered through interviews with history teachers and X-class students at one of the Senior High Schools in the Ciamis Regency, which implemented the Merdeka Curriculum in the Ciamis Regency. The interview results will be the foundation for designing teaching material products in the subsequent phase.

Design Stage

Differentiated Digital History Teaching Materials Based on the Galuh Regents History prototype were prepared in the design stage. This teaching material was designed with the Heyzine Flipbooks application adapted to the Learning Outcomes (CP) and Learning Objective Flow (ATP) in the Merdeka Curriculum that applies in schools. This prototype will be tested in the subsequent development stage.

Development Stage.

The next stage of development is carried out by developing a prototype of digital teaching materials through a series of validation tests and trials. Validation tests are performed through expert judgment with data from teaching materials and material experts' validation results. The instrument used in this validation stage is a questionnaire determined by the National Education Standards Agency (BSNP) with a Likert scale of 1-5. Data analysis was carried out descriptively with the following frequency distribution:

Table 1. Frequency Distribution Table

Score	Quantitative	Qualitative
A	$X > 4,21$	Excellent
B	$3,40 < X \leq 4,21$	Good
C	$2,60 < X \leq 3,40$	Neutral
D	$1,79 < X \leq 2,60$	Bad
E	$X \leq 1,79$	Very Bad

The results of the expert judgment are revised to be tested in the second development stage, which includes Limited Trials and Extensive Trials. This second development stage was learning simulations using Differentiated Digital History Teaching Materials Based on Galuh Regents History. This stage intends to obtain empirical data through student observation and feedback. Limited testing will be conducted at school partners with 10 students from the X.E.3 class, while extensive testing will be by 33 students from the X.E.4 class. The instrument used at this stage was a questionnaire prepared based on a 1-5 Likert scale, which was analyzed descriptively.

Implementation Stage

The implementation stage was carried out to assess the final product of Differentiated Digital History Teaching Materials Based on Galuh Regents History and whether it was suitable or not to be used in real conditions. These teaching materials were implemented in the X.E.2 class at the school partner for the 2024/2025 academic year. Product implementation will be combined with the Project-Based Learning model and differentiated learning approach.

Evaluation Stage

The final stage is evaluation, namely testing the effectiveness of the Differentiated Digital History Teaching Materials Based on Galuh Regents History on students' critical thinking abilities. This effectiveness test was using the One Group Pretest-Posttest Design. The instrument used to measure students' critical thinking abilities is a multiple-choice test with 20 questions. The pre-test and post-test question instruments refer to the FRISCO criteria according to Ennis in Payan-Carreira et al. (2016), which includes Focus, Reasons, Inferences, Situation, Clarity and Overview. The following is a table of the critical thinking test instrument grid used in this research:

Table 2. Critical thinking test instrument grid

Number	Indicators	Sub-Indicators	Number of Questions
1	Focus	Understand the material presented, provide simple explanations	3
2	Reason	Provide reasons to support conclusions	4
3	Inference	Make the right conclusion	3
4	Situation	Revealing essential factors that need to be considered in making conclusions or decisions	3
5	Clarity	Provide further explanation regarding the meaning or intent of the conclusion related to the conclusion that has been made.	4
6	Overview	Re-examine what has been decided or concluded	3

The N-Gain test will be used to analyze the test results. The following is the N-Gain test formula according to Hake (Sesmiyanti et al., 2019):

$$\text{Normalized Gain} = \frac{\text{Score (Posttest)} - \text{Score (Pretest)}}{\text{Score (ideal)} - \text{Score (Pretest)}}$$

The results of the N-Gain test will be interpreted based on specific to determine the improvement category and its effectiveness. This N-Gain test was conducted to assess the content of differentiated digital history teaching materials based on Galuh, the District R, and to improve students' critical thinking skills. According to (Sukarelawan et al., 2024), this is an interpretation of the N-Gain score:

Table 3. N-Gain Criteria

N-Gain Score	Interpretation
$0,70 \leq g \leq 100$	High
$0,30 \leq g \leq 0,70$	Middle
$0,00 < g < 30$	Low
$g = 0,00$	Constant
$-1,00 \leq g < 0,00$	Decline

Table 4. N-Gain Effectiveness

Percentage	Interpretation
> 76	Effective
$56 - 75$	Quite Effective
$40 - 55$	Less Effective
< 40	No Effective

Result

Based on the results of interviews with teachers and students and on the learning process at one of the state high schools in Ciamis, it was discovered that the use of history teaching materials still relies heavily on textbooks from the government. Apart from that, there are also textbooks published by third parties and internet resources as additional learning resources. Apart from being physical, these learning resources still do not accommodate the needs of students' diverse learning styles.

The history teacher stated that local historical sources in Ciamis are pretty challenging. History textbooks prioritising national history find it difficult for teachers to present local historical narratives when teaching history. The teacher attempted to address this issue while implementing the Student Profile Project (*Proyek Penguatan Profil Pelajar Pancasila – P5*). Nevertheless, the inadequate introduction of local history content in the classroom ultimately leads to students' unfamiliarity with the history of their region.

The following is an array of the results of interviews with teachers and students in this research:

Table 5. Interview results with teacher and students

No	Aspect	Answers
1	Teaching materials currently used	1. Government-issued textbooks 2. Third-party textbooks 3. Internet resources
2	Use of teaching materials and learning situations	1. Learning is following the material in textbooks and has not accommodated much local history content 2. Technology adaptation is still limited 3. Learning has not adopted a differentiated approach
3	Things that need to be developed from history teaching materials	1. Adopt technology and be accessible to students 2. Displays diverse content 3. Accommodating local historical content, especially from Ciamis (Galuh)

Based on the table, it's evident that the history teaching materials used in partner schools still have several problems. The physical teaching materials are outdated and irrelevant to the needs of digitalized students. Most students prefer easily accessible learning materials on smartphones over conventional ones. Therefore, digitizing history learning materials is crucial. The current teaching materials also fail to cater to students' diverse learning styles within and beyond the classroom, hindering differentiated history learning. They often present static content and contain excessive words. This preliminary analysis is a foundation for developing digital teaching materials incorporating local history content in the Ciamis Regency and accommodating various learning styles.

Based on the needs analysis conducted within the school, a design for history teaching materials is carried out. The teaching materials will be developed utilizing digital applications to enhance student accessibility. Conversely, the content of the history of Ciamis, specifically the history of the regents of Galuh, will serve as the primary focus of the teaching materials being developed. Furthermore, these teaching materials must adhere to the Learning Objectives and indicators outlined in Phase E of the Merdeka Curriculum. This teaching material is in line with the process skills and Learning Outcomes (CP) in phase E, which emphasizes the historical process skills of students in conducting simple local history research. This teaching material is thus intended to trigger students to explore various primary or secondary sources related to local history in Ciamis. The following CP and Learning Objective Flow (ATP) are pertinent to this discussion:

Table 6. Learning Outcomes (CP) and Learning Objective Flow (ATP)

Learning Outcomes	Learning Objective Flow
At the end of Phase E, students analyze, draw conclusions, communicate information, and analyze results from primary and/or secondary sources, observation results, and documentation. Students can reflect on the analysis results from information, observation, and documentation and develop a follow-up plan.	<ol style="list-style-type: none">1. Analyze various local historical phenomena based on the analysis of primary and/or secondary sources, observation results and documentation.2. Presenting the results of the analysis of local historical phenomena based on the study of primary and/or secondary sources, observation results and documentation in digital and non-digital forms.

The teaching materials developed must accommodate the diverse learning styles of students. It aligns with the requirements of the Merdeka Curriculum. A diagnostic assessment conducted by the school revealed three learning styles in the experimental class: visual, audio, and kinesthetic. For visual learners, the materials include illustrations and written information about the history of the Galuh regents. Assignments for this learning style involve creating a poster that visualizes their understanding of history.

Meanwhile, Audio learners will benefit from learning videos that explain the historical content in the teaching materials. For kinesthetic learners, a guide will be provided to explore the historical site of one of the Galuh regents so they can practice collecting local historical sources directly. This differentiated content and learning processes are evident in Differentiated Digital History Teaching Materials Based on Galuh Regents History, which supports the realization of differentiated learning.

The main historical content of the teaching materials developed is the History of the Regents of Galuh. In the initial section of the teaching material, a concise history of the formation of the Galuh Regency in the seventeenth century will be elucidated. This regency is the successor to the Galuh Kingdom, which subsequently received Islamic influence from the Cirebon Sultanate. Subsequently, the profile of the regents of Galuh will be discussed, commencing with Adipati Panaekan in 1618. The history of the regents of Galuh itself is divided into three distinct periods: the Regent of Galuh Gara Tengah, the Regent of Galuh Imbanagara, and the Regent of Galuh. The final Galuh Regent discussed in this teaching material is R.A.A. Kusumasubrata, who held office until 1914. Following Kusumasubrata's resignation as regent, the Dutch East Indies colonial government renamed Galuh Regency to Ciamis Regency. The name Ciamis has remained in use to this day.

The historical content of the Galuh regents, as presented in the developed teaching materials, is anticipated to enhance students' critical thinking abilities. In each period, the profile of each regent will be detailed, encompassing their life history, significant events, and relevant trivia. In some recent profiles, the historical context of the policies they implemented and their historical relics that still exist today will also be explained. This approach aims to provide students with a comprehensive understanding of the complexities of the past of the Galuh regent and the potential of historical sources that can be explored, fostering critical thinking skills. On the other hand, students are also expected to analyze the values of the historical stories of the Galuh regents and ensure that these values are realized in their everyday lives.

The following is an illustration of the design of Differentiated Digital History Teaching Materials Based on Galuh Regents History using the Heyzine Flipbooks application developed in this research:



Figure 1. The Teaching Materials Cover

Source(s): <https://heyzine.com/flip-book/b3fe26a56f.html#page/1>

The teaching materials developed in this study are designed to accommodate various learning styles of students. For students with a visual learning style, the teaching materials will display a lot of writing and illustrations related to the material being taught. This visual display is expected to make it easier for students with this learning style to understand the material about the regents of Galuh. This display can be seen in Figure 2.



Figure 2. Teaching Materials for Students with Visual Learning Styles

Source(s): <https://heyzine.com/flip-book/b3fe26a56f.html#page/6>

Teaching materials for students with an auditory learning style will be presented using an illustration video by the Regent of Galuh. The video will feature an artificial intelligence-based video of the first Regent of Galuh-Adipati Panaekan (in the top left corner), which tells the history of the leadership of the Regent of Galuh from his reign to all its successors. This story from the Adipati Panaekan is expected to accommodate the learning style of auditory students. This display can be seen in Figure 3.



Figure 3. Teaching Materials for Students with Auditory Learning Styles (The narrator, presented as an animated video, is situated at the top left corner of the page)
Source(s): <https://heyzine.com/flip-book/b3fe26a56f.html#page/26>

Students with a kinesthetic learning style will benefit from the Student Worksheet, which helps them conduct field studies at the Jambansari Site, the grave of R.A.A. Kusumadiningrat. Visiting that historical site is expected to enhance their critical thinking skills as they explore historical sources. This display can be seen in Figure 4.

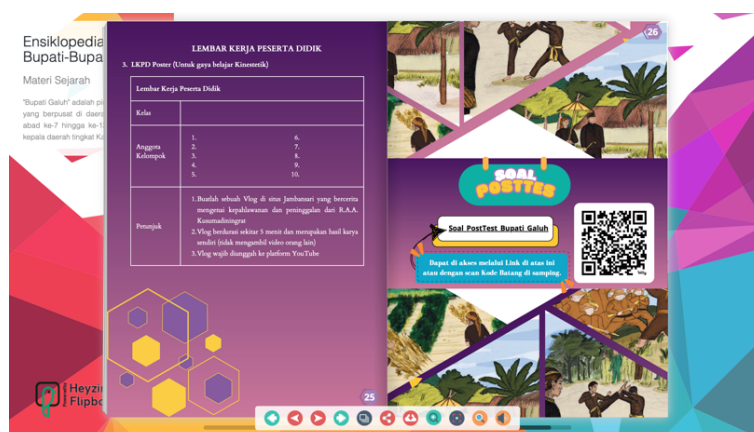


Figure 4. Teaching Materials for Students with Kinesthetic Learning Styles
Source(s): <https://heyzine.com/flip-book/b3fe26a56f.html#page/30>

The development stage of History-Based Differentiated History Digital Teaching Materials for the Regent of Galuh is carried out through two stages, namely expert judgement and trial product. The first development stage is done through specialist judgement, namely prototype validation from media experts and learning content to discover the prototype's shortcomings or advantages (Sugiyono, 2013). The teaching materials experts who validated came from Sultan Ageng Tirtayasa University, while learning content experts came from Yogyakarta State University. The following are the results of the expert judgment recapitulation:

Table 7. Expert Judgement Results

No	Aspect	Quantitative Score	Qualitative
1	Teaching Materials	4.6	Excellent
2	Content	4.2	Good

Based on the results of the assessment from teaching material experts, the following are the average scores in each aspect: (1) the language aspect has an average assessment of 4.8; (2) the aspect of presentation obtained an average of 4,5; (3) the effect of teaching materials on learning strategies has an average value of 5; (4) the overall display of teaching materials obtained an average score of 4.17. From this description, the overall average is 4.6. Furthermore, the results of the assessment from the material experts are five aspects are assessed and each of these aspects gets an average score as follows: (1) the feasibility aspect of the material gets an average score of 4; (2) the language aspect received an average score of 4.33; (3) the aspect of presentation has an average score of 4.25; (4) the module effect aspect in the learning strategy has an average score of 4; (5) the overall display aspect with an average score of 4.5. Overall, the value of the teaching material expert is 4,2.

In addition to quantitative data, there are some suggestions from validators at this expert judgement stage. This suggestion is the basis for improvement before development continues to the trial stage. Here are the suggestions from the validators:

Table 8. Validator Suggestions

No	Validator	Suggestion
1	Teaching Materials	<ol style="list-style-type: none">1. Improve font selection2. Fix colour gradation for better viewing3. Add teaching materials and instructions4. Enrich the images or illustrations used
2	Content	<ol style="list-style-type: none">1. The appearance is attractive and relevant to the content of teaching materials2. Consider the choice of colour used in teaching materials3. Need to add references at the end of the teaching materials

In general, the experts indicated that the Differentiated Digital History Teaching Materials Based on Galuh Regents History, which was developed, was quite good and warranted testing with students in schools. Several technical improvements were made, such as font selection and background colours for teaching materials. Additionally, improvements were necessary in including instructions for using teaching materials and a list of references used. These improvements were intended to facilitate students' utilization of teaching materials during learning. Subsequently, the input from these experts served as the foundation for researchers to enhance their research before progressing to the next stage.

Following the expert judgment stage, the subsequent stage is a limited trial. This trial was conducted using the digital teaching materials that had been developed. The objective was to directly assess students' perceptions regarding Differentiated Digital History Teaching Materials Based on Galuh Regents History. The respondents in this trial were 10 students in the tenth grade. The aspects evaluated at this stage included students' interests, language proficiency, the quality of the materials, and the effectiveness of differentiated approaches. Based on the questionnaire results, an average score of 4.07 was obtained, indicating satisfactory levels of student engagement. Here are the results of the Limited Trial:

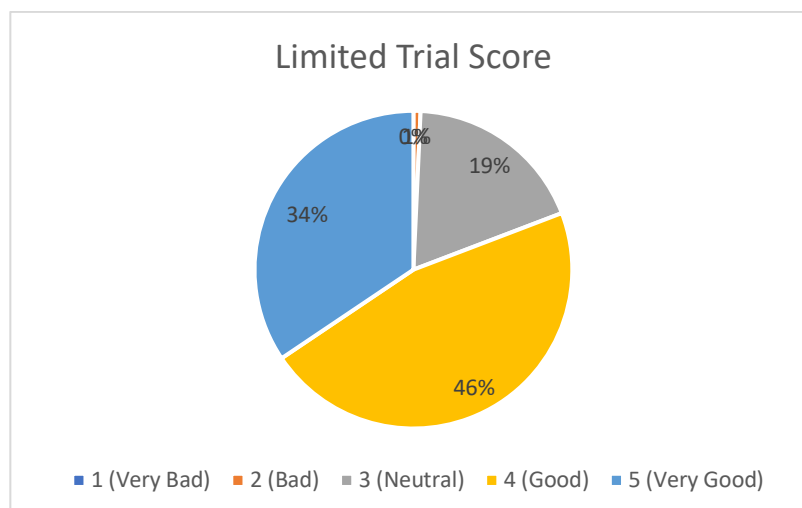


Figure 5. Limited Trial Score Diagram
Source(s): Google Form

The last trial at this stage was a broad trial applied to 33 students with the same instrument with a limited trial. At this stage, extensive trials are carried out following real classroom conditions. It means that the teaching materials have been simulated in the whole history learning process to provide a more accurate picture and input regarding things that still need to be improved from Differentiated Digital History Teaching Materials Based on Galuh Regents History. The score obtained in this extensive trial is 4.52, which means very good. Here are the results of the extensive trial

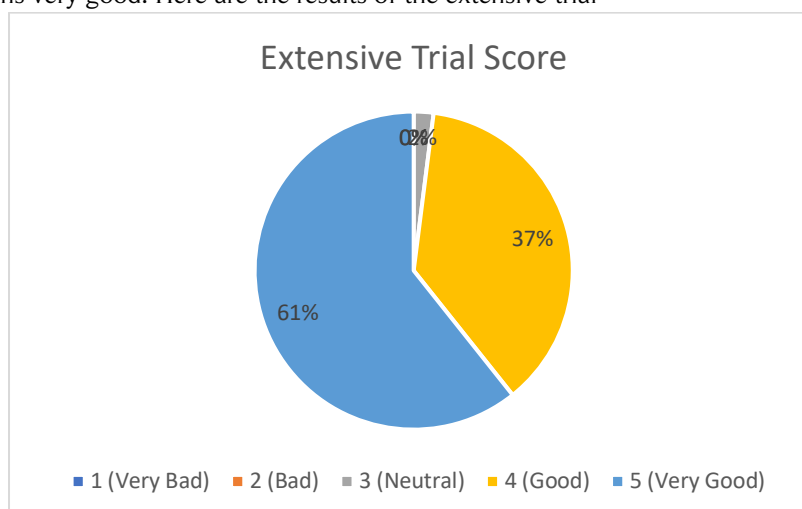


Figure 6. Extensive Trial Score Diagram
Source(s): Google Form

The test results obtained from both limited and extensive trials generally elicited a positive response from students at the school. There were virtually no significant complaints from students during the trial process of Differentiated Digital History Teaching Materials Based on Galuh Regents History. However, the challenges in conducting trials were primarily related to students' limited access to the content in teaching materials due to signal problems. Therefore, it is imperative to enhance the preparation for the availability of sufficient tissue before the teaching materials are utilized. Additionally, extensive assistance from history teachers is crucial to ensure optimal implementation of the teaching materials during the history learning process in class.

The next stage in developing this teaching material is effectiveness testing. The effectiveness test of Differentiated Digital History Teaching Materials Based on Galuh Regents History will be carried out in early September 2024 through a group Pretest-Posttest Design. The experimental class used in this research was X.E.2 at one of the state high schools in Ciamis. The number of students who took part in learning activities was 34 students. Activities carried out in the experimental class include: 1) Carrying out a pre-test of 20 questions regarding students' critical thinking abilities; 2) Carrying out learning activities using Digital Teaching Material Based on the History of the Galuh Regents through the Project Based Learning model, and; 3) Conduct a post-test to measure students' critical thinking abilities after the learning process using the developed teaching materials.

During the effectiveness test, students demonstrated proficiency in utilizing the teaching materials without encountering difficulties. During implementation, students are grouped based on their learning styles, allowing them to select materials that align with their preferences. Additionally, the assignments incorporated within the teaching materials cater to students' diverse learning styles. For students with a visual learning style, they are required to create posters. Students with an auditory learning style are tasked with writing articles. In contrast, students with a kinesthetic learning style are assigned to create a vlog showcasing a visit to a local historical site in Ciamis. These diverse efforts, supported by appropriately designed teaching materials, are anticipated to effectively accommodate students' varying learning styles in the history curriculum.

About enhancing students' critical thinking abilities, the following are the details of the pre-test and post-test results obtained from the experimental class:

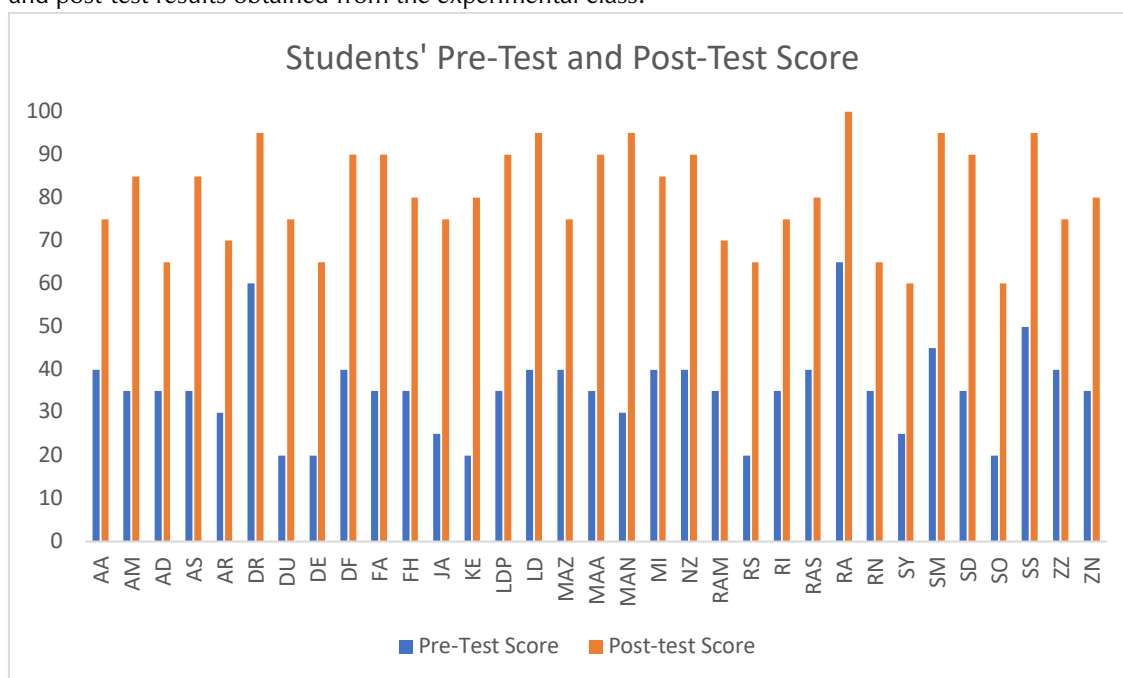


Figure 7. Recapitulation of pre-test and post-test scores in the experimental class
Source(s): Google Form

Based on the results of the pre-test and post-test, the following N-Gain scores are obtained:

Table 9. N-gain Scores of Students' Critical Thinking Abilities

Pre-Test Mean	Post-Test Mean	Ideal Score	N-Gain Score	Percentage
35,34	81,03	100	0,7218	72,18%

The N-Gain calculation yielded a score increase of 0.7218, representing a 72.18% improvement. The N-Gain test results are generally quietly high. Post-test assessments demonstrate the efficacy of

teaching materials developed within this research in enhancing students' critical thinking abilities. Based on various positive findings in this research, History educators should consider developing differentiated teaching materials based on digital products and integrating them with local historical resources when designing instructional materials that support students' contemporary learning needs.

Discussion

Based on the preliminary studies, it can be concluded that there is a need to design history teaching materials used in schools. These teaching materials must be able to adapt to various technologies and accommodate students' diverse learning needs. This aligns with the diversity of learning styles of today's students who have been digitalized (Derici & Susanti, 2023; Frolova et al., 2020). Digitalization has been demonstrated to enhance the quality of history learning, thereby augmenting the significance of learning outcomes and facilitating students' knowledge construction (Farias & Meneses, 2022; Fikril Hakim et al., 2024; Imansari et al., 2019). The content must also feature local historical content because, so far, this has not been found in the teaching materials used during learning.

Indonesian history textbooks from the government often ignore local history content and focus more on forming the Indonesian nation-state (Purwanta & Novianto, 2022). This significantly impacts students' lack of understanding of local history, particularly in Ciamis Regency. Neglecting local history can create an identity crisis among students who feel alienated from their social and cultural contexts. Therefore, digital history teaching material that caters to diverse learning styles and incorporates local history content is essential. By fostering students' understanding of contextual local history in digital form, teachers can enhance their cognitive aspects, which could improve learning quality (Bahri et al., 2021). Developing this teaching material will enhance the quality of local history learning and improve students' cognitive abilities, particularly their critical thinking skills.

The digital teaching materials developed through this research have adopted a differentiated learning strategy. This diversity of learning styles necessitates accommodation to ensure optimal achievement of learning objectives (Bal, 2016). In addition, differentiated teaching materials are also anticipated to enhance learning outcomes and student engagement in the learning process (Harris et al., 2024; Holmes et al., 2021). Teaching materials will incorporate many visual elements, including text, images, and illustrations, for the visual learning style. Conversely, for the audio learning style, teaching materials will prioritize audio content, such as narratives. Finally, practical learning activities, such as role-playing and exploration, will be emphasised for the kinesthetic learning style (Mahadi et al., 2022). Differentiating content in teaching materials offers students diverse options to explore and process information based on their preferences. For instance, students with an auditory learning style can better comprehend the profiles of the regents and their historical artefacts when listening to the narration in the teaching materials. Similarly, students with a visual learning style are aided by including various visualizations (including video content) in the materials. These facilitate their understanding of significant events in Galuh's history, such as the cultivation policy in Kusumadiningrat's leadership. Incorporating differentiated content and processes has been proven to enhance students' critical thinking skills, as evidenced by the improvement in their post-test scores.

Using digital teaching materials based on the history of the Galuh Regents has proven effective in enhancing students' critical thinking skills. The results of the N-Gain test demonstrate a remarkable 72.18% increase in percentage. According to Sukarelawan et al. (2024), that score is classified into the quite effective category. The result aligns with several other research findings that indicate the improvement of students' critical thinking abilities is influenced by using instructional materials relevant to their specific needs and learning styles (Hamdani et al., 2024; Prasasti & Anas, 2023). Furthermore, these findings have significant implications for future history education. Conceptually, the importance of critical thinking skills for students necessitates the development of teaching materials that cater to

their diverse learning needs. Therefore, the development of history teaching materials should prioritize the inclusion of various learning styles and formats suitable for digital learning. In the future, researchers should pay attention to interactive technologies like Virtual Reality and Augmented Reality. This is a crucial concern for researchers and history teachers when designing effective teaching materials for classroom use. Practically, history teachers must not only be proficient in utilizing information technology in their teaching but also be able to integrate local history into their classroom lessons. Combining local history learning with technology adaptation has been proven to enhance students' critical thinking skills and optimize learning. Contextual and relevant history learning for students will make the learning experience more meaningful and engaging.

The suitability of digital teaching materials with the characteristics of digitalized students makes history learning run optimally (Yefterson & Fallo, 2022). History learning that matches students' characteristics increases enthusiasm for learning and contributes to improving critical thinking skills (Firmansyah, 2024). The compatibility of teaching materials with learning objectives also plays a vital role in encouraging students' ability to think in higher-order skills (Ramadhany et al., 2024). In addition, critical thinking skills are also encouraged by the integration of local history material in learning. Local history learning that is carried out contextually makes students challenged to continue exploring information in more depth to construct their knowledge independently (Wiyanarti et al., 2020). Therefore, integrating local history content with digitalized teaching materials must be considered when history teachers want to improve their students' critical thinking abilities.

On the other hand, using digital history teaching materials must also be supported by relevant learning models. Project-based learning is a suitable model to support students' critical thinking abilities in learning (Sasson et al., 2018). This is also relevant to the findings of Mekarsari & Suprijono (2019), which show that using project-based learning can improve students' critical thinking skills in history subjects. Project-based learning in history learning will also be more optimal if combined with differentiated learning strategies (Syifa et al., 2024). Differentiated history learning, particularly when supported by differentiated history teaching materials, can optimize learning because it aligns with students' learning types and styles (Sanjaya, 2022). These research findings match with this research, which designs project-based learning according to three learning styles: visual, kinesthetic and auditory. Therefore, teachers should develop differentiated teaching materials that support a variety of learning styles.

Conclusion

The conclusion of this research show that: 1) Based on results of the needs analysis, it was found that the use of teaching materials in schools is still not in accordance with the characteristics of students who are highly digitized and have not accommodated the diversity of learning styles and local historical content, therefore it is necessary to design and develop teaching materials that are in accordance with the needs of these students; 2) The development of teaching materials was carried out through the expert judgement stage which received a score of 4.6 from the teaching material expert and a score of 4.2 from the content expert, then a limited trial was carried out to 10 students who got a score of 4.07 and a wide trial in the actual classroom that got a score of 4.52; 3) The results of the effectiveness test of the teaching materials developed on the students' critical thinking skills through the N-Gain Test showed a score of 0.7218 or 72,18% in precentage, which is included in the category is quite effective. Based on these findings, it can be concluded that the Differentiated Digital History Teaching Materials Based on Galuh Regents History can improve the critical thinking skills of high school students in Ciamis.

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