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# Development of Digital Teaching Materials Based on Differentiated Learning Assisted by Artificial Intelligence to Improve Students' Historical Literacy

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**Abstract:** This study aims to develop of digital teaching materials based on differentiated learning assisted by artificial intelligence to improve students' historical literacy. This research was conducted as research and development by following the ASSURE research and development procedure. The research subjects were high school students in Banyuwangi city, and the research instruments used questionnaires, interviews and observations, and the data analysis. techniques used quantitative and qualitative data analysis techniques. The research results revealed that (1) the majority of students expressed interest in using digital teaching materials, (2) Students hoped that teaching materials in the form of electronic books could facilitate the learning process from anywhere. (3) Although students have known various histories and cultures in Banyuwangi, only a few know the historical background of a culture in Banyuwangi, and (4) Digital history teaching material products based on differentiation with the help of artificial intelligence products about the history of the Gandrung dance are suitable for use in the learning process in the classroom. The results of this research and development show a 2-tailed significance value for the experimental class of 0.000. Therefore, it can be concluded that the experimental class has a 2-tailed significance value <0.05, which means H0 is rejected. This proves that the Gandrung dance history teaching material has a positive influence on improving historical literacy.

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## Introduction

The curriculum is a framework that sets expectations for student learning. This guide serves as a guide for teachers, a roadmap that sets standards for student performance and teacher accountability (Levine et al., 2024; Wijayaningputri et al., 2024; Yoto Marsono & Paryono, 2024). A curriculum comprises plans and arrangements regarding objectives, content, and learning materials, as well as methods used as guidelines for implementing learning activities to achieve specific educational goals. This definition is regulated in UU No. 20 of 2003 concerning the National Education System in Indonesia.

As a new learning paradigm in Indonesia, the Merdeka Curriculum aims to provide learning subjects that place students at the center of the learning process (Kuwoto et al., 2022; Retnaningrum et al., 2023; Rokayah et al., 2023; Soraya & Azrina, 2023). By utilizing tailored learning strategies and more straightforward and comprehensive learning objectives, new learning paradigms such as differentiated learning are implemented (Zhao et al., 2024). The Merdeka Curriculum makes literacy the foundation of learning, emphasizing the importance of reading, writing, arithmetic, and problem-solving skills in everyday life (Saa,

2024; Veryawan et al., 2023). However, the literacy rate in Indonesia remains relatively low. Several factors contribute to this, including low interest in reading, uneven quality of education, the dominance of social media, and a lack of facilities and access to quality reading materials. PISA results show that literacy levels in Indonesia are still low. The 2022 PISA report shows that around 70% of Indonesian students have low reading literacy skills(Bilad et al., 2024). The problem of low literacy rates requires a differentiated learning approach. Differentiated learning allows teachers to adapt teaching methods, materials, and assessments to students' individual learning needs, thereby improving their literacy skills (Langelaan et al., 2024; Mais & Yaum, 2025).

Differentiated learning is an educator's effort to adapt learning activities in the classroom to meet students' learning needs related to readiness to receive new material, students' interests, and students' diverse learning profiles or learning styles (Simanjuntak et al., 2023; Singh & Singh, 2014; Tomlinson, 2000). This makes educators demand to understand students' strengths and weaknesses in learning activities continuously (Barhoumi, 2023; Taylor, 2017). The professional demands of educators in differentiated learning mean that some educators are not optimal in applying this approach (van Geel et al., 2022). Educators are accustomed to using a one-way learning system that is centered on the educator himself, but in differentiated learning, the educator is the facilitator, so that learning is centered on the learner (Chamberlin & Powers, 2010; Evendi et al., 2023).

Differentiated instruction is an approach that accommodates individual differences in interests, abilities, and learning styles by adjusting the content, process, and products of learning (Mohamed et al., 2025). This approach aims to ensure that all learners can learn effectively, regardless of their differences. The Differentiated instruction model can be assisted by Artificial Intelligence by presenting lesson content that is appropriate to the needs and provisions of individual students, resulting in a more useful and meaningful learning experience (Ruslim & Khalid, 2024).

Artificial Intelligence can quickly collect and analyze large amounts of textual data and generate relevant data (Gupta et al., 2024; Khan et al., 2024). Artificial intelligence that uses machine learning models to generate new content, such as text, images, videos, or music, based on existing data (Lee et al., 2024). Artificial Intelligence can leverage and customize the curriculum for each learner, assisting in areas where they are strong and helping learners in areas where they are weak (Liu et al., 2023). The commands to generate materials that can help these students must be carefully designed (Dai, 2024).

Learning is designed to make students feel safe, comfortable, and happy to learn (Dost & Mazzoli Smith, 2023; Woodcock et al., 2023), so that literacy skills are strengthened. Literacy is very important for students, especially in the era of disruption, with the rapid development of science and technology (Farizi et al., 2023; Musyaffi et al., 2024; Rossouw & Steenkamp, 2025). History learning contributes to building these life skills as part of students' character (López-Fernández et al., 2023).

However, research shows the problem of low literacy skills of students, even though history learning requires literacy to reconstruct historical events (Bleeze, 2024; Ndomondo, 2024). When historical facts cannot be reconstructed critically, then the history is meaningless (Aniefiok-Ezemonye, 2021; Zerilli, 2022). Literacy skills are useful for understanding information about historical sources critically (Maposa & Wassermann, 2008). However, history learning at the high school level is often dominated by methods that emphasize memorization, so that there is less space for students to develop literacy skills (Purwanta, 2023). The large number of students makes it difficult for teachers to assess individual needs (Yelkpieri et al., 2012). The effectiveness of history learning is hampered

because learning has not been personalized according to the needs and characteristics of students (Barsch, 2024), as well as the low level of student literacy.

Seeing this, an innovative solution that can be done is to conduct research and development that produces innovative products in the form of differential learning models assisted by artificial intelligence that accommodate individual differences in students (Mohamed et al., 2025). Differentiated instruction (DI) is responsive to culture, can increase students' appreciation and interest in learning. The culture-based DI model can be assisted by artificial intelligence by presenting learning content that is appropriate to the needs and characteristics of students, producing meaningful learning experiences (Ruslim & Khalid, 2024), providing a more personal learning approach according to the diversity of learning styles, abilities, and interests of students (Langelaan et al., 2024). With this model, history learning becomes more dynamic and interesting.

Based on the results of observations that have been carried out, it was found that history learning activities in several schools in Jember include several strategies, such as giving different assignments according to students' abilities, presenting materials with various methods, and wanting to use varied, innovative, and meaningful learning media. Student involvement in differentiated history learning also increased, and student enthusiasm in participating in history learning activities.

The innovative solution in learning history carried out by researchers is to conduct research and development that produces innovative products, namely differentiated learning models assisted by generative AI that accommodate individual differences in students. This research develops the assistance of a Differentiated Instruction model with AI that can be learned by learning history around students and can improve student literacy. This study aims to develop digital teaching materials based on differentiated learning assisted by artificial intelligence to improve students' historical literacy. It is hoped that this research can be used as a consideration for teachers to implement differentiated learning to improve students' historical literacy in history learning and as a new learning model recommended in the Merdeka curriculum.

## Research Method

This research employed a Research and Development (R&D) method using the ASSURE Model developed by Smaldino et al. (2014), consisting of six stages, namely: (1) Analyze Learner Characteristics; (2) State Performance Targets; (3) Selection of Models, Media, and Materials; (4) Utilization of Models, Media, and Materials; (5) Require Student Participation; (6) Evaluation and Revision.

1) Analyze Learner Characteristics
   The first stage is conducting research at 3 high schools in Banyuwangi (SMAN 1 Banyuwangi; SMAN 1 Giri Taruna Bangsa Banyuwangi; and SMAN 1 Glagah Banyuwangi) to obtain the following data: (a) student characteristics, (b) use of learning resources, and (c) students'
2) State Performance Objective
   The second stage is the State Performance Objective (stating learning objectives). The developer's activities in this stage are formulating learning objectives to determine the abilities that students will have after participating in learning (Umamah, 2019:17). Through curriculum review, graduate competency analysis, and history learning objectives can be formulated. This formulation is carried out using the ABCD formula (Audience, Behavior, Condition, Degree).
3) Select Methods, Media, and Materials

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The third stage is Select Methods, Media, and Materials (choosing methods, media, and materials). The developer's activities at this stage are to determine the methods, media, and history learning materials that are appropriate to the needs and conditions of students at school.

4) Utilize Media and Materials
The fourth stage of the model is Utilize Media and Materials (utilization of models, materials, and learning media). Developer activities in this stage are reviewing the feasibility and effectiveness of models, teaching materials, and differentiated learning media based on AI, preparing learning materials, environments, and students through validation activities and field trials. This is done by the User Trial activities, individual trials at 3 schools where the research was conducted.
5) Requires Learner Participation
At this stage, the developer creates meaningful learning activities systematically. The following is an explanation: (1) Draft is tested in the field to assess whether the product that has gone through the expert validation and user review stages can improve literacy; (2) Field trials are conducted to assess students' learning completeness from the average results of the Pre-test and Post-test of history learning. Furthermore, the main field trial is conducted at 3 schools where the research is conducted.
6) Evaluate and Revise
The sixth stage is Evaluate and Revise (evaluation and revision). At this stage, a summative evaluation is carried out, which aims to assess or measure the improvement of critical thinking and student literacy after the Differentiated Instructions model using AI Exploration was developed and applied to history learning. Summative evaluation is carried out by collecting objective data during the development process. So, at this stage, the developer has obtained a final product that is worthy of being disseminated.

## Results and Discussion

The result of this development is the creation of a differentiated historical learning resource assisted by AI about the history of Banyuwangi Gandrung to improve historical literacy for the next generation. The purpose of this development is to provide a product that can be used by educators and students in high schools to compile teaching materials about local history.

1) Analyze Learner Characteristics

The analysis of digital teaching material needs in this research is to find out the teaching materials needed by students to improve the quality of product-differentiated learning. To produce good teaching materials, a needs analysis is needed first to collect information and analyze student needs. Information on product development needs in the form of digital teaching materials was collected by distributing questionnaires to respondents regarding their needs for teaching materials. field. From the results of the questionnaire, all students' needs were described and analyzed as the first step in product development in the form of digital teaching materials for history subjects in high school. In this research, several important parts need to be analyzed, including (a) student characteristics, (b) use of learning resources, and (c) students' understanding of history.

The student characteristics analyzed included a basic understanding of digital teaching materials, views of digital teaching materials, capacity to master digital teaching materials, motivation, and the potential to provide teaching materials. Students were given access to the

content of the student characteristics, which they then used to select how to respond to the disseminated questionnaires. In the meantime, Table 1 below displays the detailed needs analysis findings for the pupils.

**Table 1. Analysis of Student Characteristics**

| Indicator | Variable Analysis | Percentage |
|---|---|---|
| Initial knowledge | Know the use of digital teaching materials | 87.8 % |
| Perception | Have a positive view of the use of digital teaching materials | 86.5 % |
| Ability to master | Have a habit of using digital resources in everyday life | 76 % |
| Motivation | Have an interest in the use of digital teaching materials | 95.1% |
| Presentation potential | Have an interest in digital teaching materials to foster independent learning | 86.5% |

We analyzed the student characteristics in Banyuwangi Senior High School by distributing questionnaires to the participants. Based on the analysis results, students were found to have 87.8% initial knowledge of using digital teaching materials in the classroom, 86.5% positive view of the use of digital teaching materials, 76% habit of using digital resources in daily life, 95.1% interest in using digital teaching materials, and 86.5% interest in using digital teaching materials to support independent learning.

According to Table 1's analytical results of the student characteristics, most students indicated an interest in utilizing digital teaching resources. This is a good thing, as educational communication technology may create a lively atmosphere for instruction and learning. Aside from that, education in the twenty-first century results in online education. The term "teaching materials developed" refers to creating digital teaching materials. Students believe that digitally-based teaching materials will speed up their learning process because they can be used anytime and anywhere (Šorgo et al., 2023). Creatively created instructional resources can also support efficient, self-directed learning and assist students in developing the abilities necessary for learning. Additionally, effective teaching resources can facilitate the process of distance learning, as students will find it easier to access and learn from them (Bušljeta, 2013).

An additional tool utilized in the resource study was a Google Form questionnaire covering learning facilities, technological accessibility, and material sources. Students had access to the resource material, which they could select from when answering the questionnaire. After receiving a link that was linked to the Google form, respondents selected one of the available answer choices. In the meantime, Table 2 below provides the detailed analysis findings of the student resources.

**Table 2. Analysis of Learning Resources**

| Indicator | Variable Analysis | Percentage |
|---|---|---|
| Use of learning resources | The textbooks that have been used in schools are printed books/ modules. | 90.3 % |
| Availability of technology | Students have laptops/gadgets that can support digital teaching materials. | 97.6% |
| Technology | Students have an understanding | 95.1% |

| | |
|---|---|
| understanding. | of the use of digital technology in learning |

Respondents to a questionnaire that was sent as part of the learning resource analysis process. According to the analysis's findings, printed books or modules make up 90.3% of the textbooks used in classrooms; 97.6% of students own laptops or other devices that can support digital teaching materials; and 95.1% of students are aware of how to use digital technology for learning. Table 2 provides information on students' expectations regarding the ability of electronic books as teaching resources to support their learning process from any location. Students may also study each learning material topic independently based on their skills and capabilities, thanks to digital teaching materials. Aside from that, students' learning experiences can be enhanced by using digital instructional resources (Haleem et al., 2022).

According to the findings of the study on the need for instructional materials, the majority of teachers often use printed books that already exist, photocopy them, and provide them to the students (Amirtharaj et al., 2023). This circumstance presents a challenge. Teachers must incorporate technology into their lessons and replace antiquated teaching techniques with more contemporary resources and equipment, since 21st-century education is so urgently needed (Eslit, 2023). Excellent teaching resources undoubtedly include the theory to be studied, a summary of it, and a variety of learning exercises that students may do even if they don't meet with the teacher in person. Thus, the creation of learning requirements must include pupils' qualities from various perspectives, including psychology, intellectual intelligence, and prospective growth (Darling-Hammond et al., 2020). The creation of digital teaching resources is greatly aided by students' proficiency with digital gadgets and computers. Because the educational materials may be shown adequately on the devices that students can access, students have no trouble using and studying these resources. Additionally, creating digital teaching resources can support online learning and enable educators to meet the needs of their students.

Meanwhile, to measure historical literacy skills, a historical literacy assessment grid is used, which is derived from the sub-dimensions of historical literacy with the following details:

**Table 3. Local History Literacy Assessment Grid**

| Dimensions of Historical Literacy | Grids of Historical Literacy |
|---|---|
| Knowledge | Students can understand historical events<br>Students can explain the narrative or process of historical events.. |
| Conceptual understanding | Students are able to explain historical events based on the period or time of occurrence.<br>Students are able to explain the causes and effects of historical events.<br>Students can express the meaning of historical events.<br>Students are able to describe the moral messages contained in historical events. |

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| | |
|---|---|
| Source Work Historical Method | Students can find primary historical sources from history<br>Students can interpret historical sources<br>Students can convey the results of interpretation in the form of historical writing |
| Historical Consciuosness | Students are able to explain the relationship between events that occurred in the past and the present. |

2) State Performance Objective

Formulating learning objectives aims to determine the abilities that students will have after participating in history learning. Based on Core Competencies and Basic Competencies, history learning objectives can be formulated. The formulation is done by using the ABCD formula (Audience, Behavior, Condition, Degree). Audience contains information about students, in this case, students in grade XI of high school. Behavior describes the competency aspects that must be mastered by students after learning history. Condition describes the circumstances or situations that must exist during history learning so that learning can run well. These conditions can be in the form of facilities, equipment, supplies, and objects. A degree describes the level or standard that needs to be demonstrated.

3) Select Methods, Media, and Materials

Creating research and development products is the second step in the research and development process carried out by researchers. Researchers have planned the form and function of the product during the design stage. To compile this research and development product, a framework is created that follows the curriculum and learning objectives that apply in schools. The design stage is the process of preparing the final result, which begins with determining the topic of teaching materials based on the needs of each student. Analysis of the needs for the relevant subject matter based on local history on the development of the main topic, namely the local culinary theme. This is because conservation initiatives foster socio-cultural resilience by preserving, advancing, and exploiting local historical potential.

The necessity for efforts to preserve diverse types of history in the area led researchers to determine that local history would be a prominent topic for study and development. As a result, a sub-theme design centered around many hero characters for students is created for research and development items. To create historical teaching materials utilizing local history that satisfy the requirements for usage by students and educators in the learning process, these subthemes are structured in digital teaching material products.

**Figure 1. Initial Cover of Teaching Material Products**

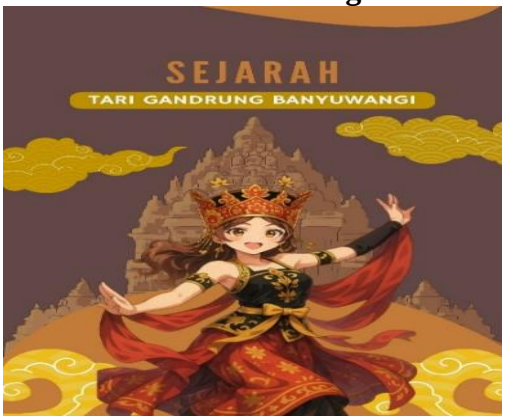

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**Figure 2. Contents of Teaching Materials**


Essentially, the teaching materials on the history of the Gandrung dance are compiled to enhance students' understanding of historical research materials and promote their local historical literacy. So that in its presentation, the best possible material on research methods and historical writing, as well as explanations of local history, are useful as an introduction to the initial understanding of the case study to be studied. This aims to ensure that local history with a connection to Banyuwangi's identity is known and understood by the younger generation. The enthusiasm of young groups in the past in preserving cultural arts can be an inspirational value for students, so that the wealth of their ancestors will be maintained and not simply lost.

4) Utilization of Models, Media, and Materials;

Validating the research and development product for seasoned teachers comes next, and it is based on the product development that is organized based on the needs and learning orientation. This study's research and development product validation phase was still restricted to the learning environment's validation. The evaluation by the media specialist indicates that the research and development product is very practical for use. After implementing various product adjustments with advice from media experts, the media aspect's feasibility score is determined. Clarifying picture illustrations, altering the color of the product backdrop, arranging the photographs better, and repositioning the text were some of the improvements performed.

The empirical value of the product feasibility on the media aspect (Y) was found to be 82 on average based on the evaluation conducted by media professionals. The results demonstrate that the media element falls within the 85–100 eligibility range, making it a highly suitable choice for use in the teaching and learning process. Table 4 displays the viability value of instructors with media expertise.

**Table 5. Media Expert Validation Score**

| Assessment | Aspect Score |
|---|---|
| Appearance | 83 |
| Illustration | 81 |
| Average | 82 |

The feasibility interval of teaching material media is presented in Table 5 .

**Table 6. Eligibility Criteria for Teaching Materials**

| Interval | Category |
|---|---|
| 85 <Y≤100 | Very Worthy |
| 85 <Y≤70 | Worthy |

| | |
|---|---|
| 70<Y≤55 | Less worthy |
| 55<Y≤40 | Not feasible |

Acceptance of teaching materials by students also influences the suitability of media items. The research findings show that both in terms of appearance and illustration, the revised teaching materials received good feasibility scores. Based on previous research, the creation of electronic-based culinary learning resources has met appropriate standards, especially in terms of media presentation and content. According to Grewal et al. (2024) findings, the assessment elements that must be met for product development to be considered feasible include language, presentation, and appearance of teaching materials, as well as content and materials. These results also provide information regarding the suitability of teaching materials created as learning media in educational environments.

Design and development show that teachers and students can use the products created in teaching and learning activities based on the results of the needs analysis. Previous research, which suggests incorporating local wisdom values into teaching and learning activities in environmentally friendly schools, supports this. According to Smiderle et al. (2020), students now have a genuine understanding of the topic thanks to the creation of teaching materials centered on locally sourced environmental expertise. This is because the learning content is considered more inventive and interesting, and also highly applicable in social practice.

It is also supported by the results of other literature studies that the development of digital learning content about the history and local wisdom. According to Pratama et al. (2024), Local wisdom significantly influences various aspects of community life, including education, cultural heritage conservation, and even decision-making processes. It provides a framework for maintaining the balance of social and natural environments.

Teachers and other education professionals now have the option to create creative learning tools themselves or through the use of locally relevant knowledge-based research and differentiation findings. Understanding cultural diversity among students. To improve the learning objectives of instructors and students, further research is carried out on the development of additional learning materials that are suitable for use in the process of teaching and learning activities in school (Guo et al., 2020). To demonstrate a high level of educational competence, teachers must maximize the production of media or learning resources. Furthermore, the creation of teaching materials can help teachers and students meet certain learning objectives and the needs of the teaching and learning process in the classroom and produce differentiated classes (Langelaan et al., 2024; Sunarto et al., 2024). Students believe that learning will be relevant and simple if it is presented to them in the form of material from the environment, which functions as a source of other educational resources.

5) Require Student Participation

The next stage requires learner participation. To involve students in the learning process, educators need to prepare students mentally before learning. This preparation will make students ready to carry out the learning process. Educators convey learning objectives and competencies to be achieved in learning. The next step is for educators to create learning activities by presenting knowledge and skills that are developed logically and systematically. The presentation of development materials needs to present the contents of history learning materials, consisting of concepts, principles, and skills, systematically.

The next step is for educators to create learning activities by presenting knowledge and skills that are developed logically and systematically. The presentation of developer materials needs to present the contents of history learning materials, consisting of concepts, principles, and skills systematically. At this stage, a field trial is conducted to assess whether the product that has gone through the expert trial and user review stages can improve historical literacy. If the field test shows that the e-module can improve historical literacy, then the product does not need to be revised. However, on the contrary, if the e-module has not improved historical literacy, the product will be revised. The revision is carried out until an e-module is obtained that can improve historical literacy.

Field trials were conducted to determine historical literacy in the use of e-modules in the history learning process. In this development research, the learning completion of students will be assessed from the average results of the pre-test and post-test of history learning. Additionally, responses and suggestions will be provided for the developed module. The results of this field trial will be used as a reference for improving the e-module to produce a good final product.

Next, a follow-up test was conducted to assess the impact of project assignments in digital history textbooks on improving students' historical literacy. The test was conducted in three stages, including normality, homogeneity, and paired sample t-tests. The following is a summary of the results of the test on improving historical literacy that was conducted.

**Table 7. Summary of Historical Literacy Improvement Test**

| Tests Conducted | Test Type | *Sig.* | Conclusion |
|---|---|---|---|
| **Prerequisite Test** | | | |
| a. *Normality Test*<br>• *Experiment Pretest*<br>• *Control Pretest*<br>• *Experiment Posttest*<br>• *Control Posttest* | *Kolmogorov Smirnov* | 0.094 (>0.05)<br>0.064 (>0.05)<br>0.063 (>0.05)<br>0.053 (>0.05) | The pretest and posttest value data from the experimental and control classes are normally distributed |
| b. *Homogeneity Test* | *Levene Statistic* | 0. 440 (>0.05) | The pretest and posttest value data from the experimental and control classes are homogeneous. |
| Local History Literacy Improvement Test of Experimental and Control Classes | *Independent sample t-test* | 0.00 (>0.05) | There is an increase in local history literacy before and after the Treatment |

From Table 7, the significance value (2-tailed) of the experimental class is 0.000. So, it can be concluded that the experimental class has a sig value (2-tailed) <0.05, meaning that H0 is rejected, namely, there is a difference in the achievement of students in the experimental class before and after receiving treatment. Meanwhile, the increase in the pretest and posttest scores of the experimental class was 0.7 with a high category, while the control class was 0.5 with a medium category. Based on the difference in the increase in achievement of the experimental and control classes, it proves that the Gandrung dance history writing teaching material has a positive influence on increasing historical literacy.

6) Evaluation and Revision

The final stage of this development is to evaluate and revise. At this stage, a summative evaluation is carried out with the aim of assessing the increase in historical literacy after the e-module is implemented in the history learning process. Summative evaluation is carried out by collecting objective data during the development process. At this stage, the

developer has obtained a final product that has gone through several stages of the development procedure. The evaluation shows that the teaching materials are effective in improving historical thinking skills, but the content of the teaching materials is revised to emphasize historical thinking and critical thinking. The revision focuses on adding multimedia to strengthen historical literacy.

The development of digital learning materials based on differentiated learning, aided by artificial intelligence (AI), is a transformative approach in education, particularly for improving historical literacy. Historical literacy involves the ability to critically analyze historical sources, understand context, and apply historical knowledge to contemporary issues (Gibson et al., 2025; López-Fernández et al., 2023). Differentiated learning, inspired by models such as Carol Ann Tomlinson's, tailors instruction to each student's needs, including varying content, processes, products, and learning environments based on their readiness, interests, and profiles (e.g., visual, auditory, or kinesthetic styles) (Defitriani, 2019; El Khdar et al., 2019). The integration of AI enables large-scale personalization through data-driven adaptation, making this approach particularly effective for subjects like history, where multiple perspectives and complex narratives require tailored engagement.

## Conclusion

According to the research's findings, (1) most students indicated a desire to use digital teaching resources, particularly regarding their first understanding of and reason for doing so. (2) As all students have access to devices like laptops and other technology, they believe that instructional resources in the form of electronic books will allow them to learn from anywhere. (3) It has been demonstrated that teaching materials created with product differentiation, such as digital local history teaching materials, are very suitable for use in the teaching and learning of history and can increase historical literacy. (4) The development of AI-based history teaching materials has great potential to revitalize history education in Indonesia, making it more relevant to the digital-native Generation Z. However, the key is a balance between technology and the human touch—AI as a tool, not a replacement. If implemented well, this can help students not only memorize dates but also understand the lessons from the past for the future. This proves that the teaching materials of the history of the Banyuwangi Gandrung dance can encourage students in literacy activities and improve local historical literacy at a simple level.

## Recommendation

Based on the results of this study, to improve historical literacy, local history around each region can be used, so that learning is more meaningful with the history around. Historical literacy can improve students' critical thinking, so it is necessary to develop other historical teaching materials, and the development of digital history teaching materials based on Artificial Intelligence (AI) is an innovative step to improve the quality of education in the digital age. For policymakers (such as local governments, ministries, or school administrators), the focus is on policy, infrastructure, and ethics. For teachers, recommendations emphasize practical implementation in the classroom. These recommendations are based on current trends in Indonesia, including AI literacy guidelines and the national AI roadmap, which emphasizes AI integration for sustainable educational transformation through 2045.

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