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Character Education through Bagan Siapiapi Historical Heritage: A Scientific Approach in the 4.0 Era

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ABSTRACT

In the context of Education 4.0, integrating local cultural heritage into history learning can serve as a powerful medium for character education. This study explores how the historical heritage of Bagan Siapiapi can be utilized in history education to foster students' character values through a scientific approach and digital platforms. This research employed a qualitative descriptive approach, collecting data through document analysis, direct observation, and interviews with local figures. Various historical sources were examined, including books, journal articles, archived documents, and visual media related to historical sites in Bagan Siapiapi. The study identified key historical sites such as the Malay House, Old Shop, Kapitan Oei Hi Tam House, Bagan Madjoe Bank, St. Damian Church, and others. These sites represent historical narratives and contain intrinsic character values, including religious devotion, tolerance, patriotism, and social responsibility. The identified values were analyzed in relation to the historical context and functions of each site. These findings were then mapped to character education goals outlined in national curriculum standards. The historical heritage of Bagan Siapiapi offers a rich and contextual resource for character-based history learning. When implemented through a scientific approach—consisting of observation, questioning, data collection, reasoning, and presentation—this model can enhance students' historical awareness and value-based learning. Future research should explore the measurable impact of this approach on students' character development and the effectiveness of digital media integration in diverse educational settings.

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1. INTRODUCTION

In the rapidly evolving landscape of global education, the emphasis on adaptive, creative, and meaningful learning models is more critical than ever. The swift development of technology and digital learning tools has necessitated a pedagogical shift that redefines the roles of educators in the learning process. Rather than serving solely as sources of information, educators are now expected to become

facilitators and designers of learning experiences that are contextual, value-oriented, and responsive to students' individual and societal needs (Wei & Chuang, 2024). In the Indonesian context, this transformation aligns closely with the goals of national education reforms, such as the Pendidikan Penguatan Karakter (Strengthening Character Education), the 2013 Curriculum, and the Pancasila Student Profile, all of which advocate for a values-based and student-centered approach to learning (Ministry of Education and Culture, 2017).

Traditionally, learning in Indonesia has heavily focused on conceptual mastery, often through rigid textbook-based instruction. However, the limitations of such an approach—especially in fostering higher-order thinking, emotional intelligence, and ethical reasoning—have become increasingly apparent. As a result, a paradigm shift is underway. Learning is no longer regarded merely as a means of absorbing facts, but rather as a platform for character building, critical reflection, and the internalization of core values. This is particularly true for history education, which is inherently tied to the nation's identity and moral fabric. Historical content, when taught effectively, provides learners with opportunities to interpret the past, understand cultural heritage, and form value-based perspectives that influence their actions in the present (Komalasari & Saripudin, 2022).

In this transformative vision of education, character development emerges as a central objective. It is widely acknowledged that learning is not just a cognitive process but also an affective one that involves emotional engagement, value formation, and behavioral modeling (Lickona, 2016). As such, the learning process must be deliberately designed to reinforce positive values such as tolerance, patriotism, empathy, and social responsibility. Continuous guidance from educators and parents is essential in this endeavor, not only to ensure academic achievement but also to cultivate moral integrity and civic responsibility. In this way, education becomes both a personal and collective journey of becoming ethical and responsible members of society (Hadi, Ziyad, Nurhidayati, & Sumardi, 2025).

History education occupies a unique position in fostering character, as it deals with narratives of human struggle, resilience, and identity. In Indonesia, the objectives of history education as outlined in the Permendiknas No. 22 of 2006 emphasize the importance of using historical knowledge to instill national pride, critical thinking, and moral understanding in students. These objectives align with broader educational goals that stress the integration of cognitive, affective, and psychomotor domains (Ministry of National Education, 2006). However, achieving these goals requires a fundamental rethinking of how history is taught. Rather than relying on rote memorization of dates and events, educators must create learning experiences that allow students to interpret, evaluate, and connect historical knowledge with contemporary realities and personal values (Mardi, 2019).

A promising approach to achieve this is through contextual and localized learning, particularly by incorporating elements of local history and heritage into the curriculum. Local historical sites and artifacts serve as tangible connections to the past, making history more relatable and meaningful to students. These localized resources also offer a rich tapestry of cultural and moral values that can be leveraged for character education. According to Keraf (2010), values embedded in local wisdom play a critical role in shaping individual behavior and social norms. Thus, history education grounded in local heritage—such as the historical legacy of Bagan Siapiapi—can be an effective medium for instilling national values while fostering students' critical consciousness.

This approach becomes especially relevant in the era of the Industrial Revolution 4.0, where education must not only keep pace with technological advancements but also respond to the ethical challenges posed by such developments. The digital age demands students who are not only technologically literate but also morally grounded. Therefore, history learning must evolve to include digital tools and platforms that enhance accessibility, engagement, and interactivity while remaining faithful to the core mission of character formation (Lase, 2019). Education 4.0, as outlined by Fisk (2017), envisions a future where learning is personalized, flexible, and integrated with real-world experiences, including fieldwork, project-based learning, and the use of virtual and augmented reality. History learning can thrive in this environment if educators are willing to innovate pedagogical strategies that blend digital literacy with ethical inquiry.

One such strategy is the application of the scientific approach to history learning. Rooted in constructivist theory, the scientific approach encourages students to engage actively in the learning process through structured inquiry, including observing, questioning, data gathering, reasoning, and communicating findings (Hosnan, 2014; Sani, 2014). This model empowers students to take ownership of their learning and to build knowledge through critical engagement with historical sources and events. Importantly, it fosters a habit of reasoning that is essential for value formation. When students are encouraged to ask questions such as "Why did this event occur?" or "What can we learn from this legacy?", they begin to internalize ethical perspectives that go beyond surface-level understanding.

Moreover, applying the scientific approach to local historical content enhances contextual learning and student engagement. In places like Bagan Siapiapi—rich in cultural heritage and historical landmarks—students have access to authentic learning resources that stimulate curiosity and deepen historical understanding. When students are guided to explore historical sites, interview community members, or analyze artifacts through a structured inquiry process, they not only develop historical thinking skills but also encounter lived values that are embedded in their own community's narrative (Jiménez Pérez, Cuenca López, & Ferreras Listán, 2010). These experiences are crucial in developing empathy, a sense of belonging, and national identity.

Thus, the integration of a scientific approach in history education that utilizes local heritage represents a viable and innovative strategy for achieving the dual goals of academic and character development. In the current digital era, where students are constantly interacting with technology, such strategies ensure that education remains relevant, meaningful, and transformative. The teacher's role in this context becomes that of a facilitator who orchestrates learning environments that are inquiry-driven, value-laden, and rooted in the students' lived realities. As the boundaries of formal learning spaces expand beyond classrooms into communities and digital platforms, it is vital that history learning continues to emphasize character education through authentic, student-centered practices.

In conclusion, strengthening history education through a scientific and contextual approach that draws from local heritage, such as that found in Bagan Siapiapi, is a critical step toward achieving holistic educational goals in Indonesia. As educators navigate the demands of Education 4.0, it is essential to remain grounded in pedagogical practices that not only embrace technological advancements but also uphold the values and cultural identity that form the foundation of the nation's future.

2. METHOD

This study employed a qualitative research design with a descriptive-analytical approach, as outlined by Moleong (1989), aiming to explore and interpret the character values embedded within the historical heritage of Bagan Siapiapi. The descriptive-analytical method was selected to provide an in-depth understanding of the phenomena by systematically describing and interpreting data derived from various sources. This approach allows for contextual exploration of the values within local historical relics and their integration into history learning through a scientific approach, aligned with Education 4.0 frameworks.

2.1 Data Collection

Data were gathered through a combination of document analysis, field observations, semi-structured interviews, and digital exploration. Field observations were conducted both directly and virtually (via digital platforms and internet searches) due to accessibility constraints and technological affordances. The primary data sources included:

1. Archival documents housed in the Bagan Siapiapi Library
2. Collections from personal libraries of local historical figures
3. Published materials such as books, journals, e-books, and academic papers relevant to Bagan Siapiapi's historical heritage

4. Interviews with local historians, community leaders, and cultural experts familiar with the legacy and function of specific historical sites

The interviews followed a semi-structured format to allow for flexibility in exploring narratives related to each site. Digital sources such as online archives and visual records were also utilized to supplement the physical and oral data, especially in cases where direct field visits were constrained.

2.2 Data Analysis

The analysis process followed a thematic content analysis technique. All qualitative data were first transcribed and organized into textual form. The researcher then conducted open coding to identify recurring themes, particularly focusing on:

1. The historical function and context of each site
2. The social, cultural, or political significance
3. The implied or explicit character values associated with each site (e.g., tolerance, patriotism, religious values, social responsibility)

The data were then grouped thematically into categories aligned with the five core character values promoted in the *Strengthening Character Education (PPK)* framework by the Indonesian Ministry of Education and Culture (2017): religiosity, nationalism, independence, integrity, and social care. A matrix table was developed to map each historical relic to the corresponding character values, historical context, and learning potential.

2.3 Data Validation

To ensure the credibility and trustworthiness of the findings, several validation techniques were applied:

1. Triangulation of data sources: Information from interviews, documents, and observations was cross-verified to ensure consistency.
2. Member checking: Selected interviewees (e.g., local historians and community leaders) were consulted again to confirm the interpretation of their statements and the assigned character values.
3. Peer debriefing: The research findings were reviewed by academic peers in history education and character development to ensure theoretical and contextual alignment.
4. Thick description: Rich contextual detail was provided to allow readers to assess the transferability of the findings to other local history learning contexts.

All analysis steps were carried out manually and iteratively, following Creswell's (2010) suggestion to allow categories and patterns to emerge naturally from the data rather than imposing predefined analytical frames.

2.4 Ethical Considerations

All interview participants provided informed consent prior to participation, and confidentiality was maintained throughout the study. Digital data were used in accordance with fair use policies, and all sources were properly cited to avoid plagiarism or misrepresentation.

2.5 Integration with Scientific Learning Approach

The identified character values were then aligned with components of the scientific approach to learning (observation, questioning, data collection, reasoning, and communication), in accordance with the 2013 Curriculum and Education 4.0 principles. These findings were subsequently designed for use in history learning models that utilize local historical heritage as context-rich educational material, aiming to enhance historical awareness and character formation.

This method supports the research objective of identifying and integrating the character values embedded in Bagan Siapiapi's historical heritage into a student-centered, scientific approach to history learning in the era of digital transformation.

3. FINDINGS AND DISCUSSION

Strengthening history learning through a scientific approach based on historical heritage in Bagan Siapiapi significantly supports implementing an effective learning process. In the context of this article, several things will be developed, including the orientation of strengthening history learning objectives through character values contained in historical heritage, history learning using a scientific approach based on historical heritage in Bagan Siapiapi, and strengthening history learning using a scientific approach in the era of the Industrial Revolution 4.0. Three things will be revealed in this article.

3.1 Orientation of Strengthening History Learning Objectives Through Character Values Contained in Historical Heritage

In the context of curriculum development, various orientations of history education reveal that the primary objective of history learning extends beyond cognitive and psychomotor aspects to include the development of affective dimensions. Fundamentally, history education is aimed at shaping students' national character. This objective is reinforced by the Regulation of the Minister of National Education (Permendiknas) No. 22 of 2006 concerning content standards, which emphasises that knowledge of the past contains local wisdom values essential for fostering intellectual growth, character development, and personal identity in students.

This focus is also evident in the 2013 Curriculum as outlined by the Ministry of Education and Culture (2015, p. 11), which specifies six key objectives of history learning:

1. To instil in students a sense of national identity and pride, promoting empathy and tolerance in social and civic life;
2. To deepen students' understanding of themselves, society, and the historical development of the Indonesian nation;
3. To cultivate moral values and behaviours that reflect personal, societal, and national character;
4. To raise students' awareness of the significance of time and space in understanding historical change and continuity;
5. To foster appreciation and respect for historical heritage as evidence of Indonesia's past civilisation;
6. To develop students' historical thinking skills as the foundation for logical, creative, inspiring, and innovative thought.

These objectives collectively underscore the importance of consolidating history education to serve not only intellectual development but also the cultivation of civic and moral responsibility. Therefore, all pedagogical components—ranging from teaching materials and instructional methods to models and strategies—must align with the broader aim of history education: the construction of national character.

It is important to note that history learning should not be reduced to the mere acquisition of concepts, memorisation, comprehension, or analytical skills. As emphasised by Hasan (2012), history serves as a reminder of the values embedded in the nation's past struggles. Teaching materials, therefore, should be designed to help students internalise these values, understand the background and processes of historical events, and appreciate their impact on the national narrative (Kuntowijoyo, 2005; Seixas, 2017). The orientation of history education must thus focus on character formation through affective, cognitive, and psychomotor integration, all grounded in the overarching goal of cultivating a sense of national identity and ethical consciousness.

Furthermore, the reinforcement of history learning through historical heritage allows for the implementation of contextualised learning based on students' socio-cultural backgrounds and ethnic identities. This approach requires the deliberate identification and integration of local historical content into teaching materials and student learning tasks. Each learning concept—especially within the domains of social and historical studies—should be imbued with national values that resonate with students' lived experiences.

As Hasan (2012) asserts, history education holds strategic importance in shaping a dignified national character and civilisation, while fostering a deep sense of nationalism and love for the homeland. Therefore, to realise the objectives of history education, instructional designs must incorporate reflection, interpretation, and value-based analysis. These practices are crucial in reinforcing the affective domain, which serves as the foundation for developing civic virtues and national consciousness in students.

In conclusion, the orientation of history education should be clearly directed toward the cultivation of affective qualities, supported by cognitive and psychomotor development. Achieving this requires intentional and value-driven educational practices that position history learning as a transformative force in shaping students' character, worldview, and sense of national identity.

3.2 Historical Learning Based on Bagansiapiapi's Historical Heritage in Strengthening Character Education

History learning that incorporates a scientific approach and is based on historical heritage, particularly as implemented in Bagan Siapiapi, serves as a powerful pedagogical model for contextualising historical knowledge. Such an approach enhances students' historical understanding by placing them in direct or virtual contact with relics and historical contexts rooted in their immediate environment (Dewey, 1997; Zahorik, 1995). This method resonates with the broader aim of contextual learning, which seeks to bring educational content closer to the learner's reality. Despite its potential, contextual history education frequently encounters challenges due to a perceived incompatibility between the abstract nature of historical events and the tangible, experiential orientation of contextual learning (Abdurahman, 2007; Kuntowijoyo, 2005). While history tends to be perceived as a study of past events, contextual learning demands real-world, lived experiences that students can personally engage with (Sanjaya, 2011).

This disconnect highlights the necessity of integrating local historical heritage into the learning process. By doing so, students are able to experience history not merely as a set of abstract facts, but as living history reflected in the monuments, artifacts, and oral histories surrounding them (Jiménez Pérez, Cuenca López, & Ferreras Listán, 2010). The integration of historical heritage into education fosters not only cognitive understanding, but also affective engagement, leading to the development of national identity and character (Tamburaka, 1999).

The case of Bagan Siapiapi demonstrates the value of using local historical relics as learning resources. These artifacts—such as colonial-era buildings, religious sites, and monuments—serve as tangible sources of historical knowledge. Learning activities rooted in these sources allow for the development of local history teaching materials, which can then be used as learning media to explore connections between local and national historical narratives. This process aligns with the view that historical relics must be meaningfully linked to historical study, thereby enabling students to experience the relevance of what they are learning (Nurhadi, Yasin, & Senduk, 2004).

History education must transcend rote memorisation and aim instead at the formation of national character (Hasan, 2012). The adoption of a scientific approach in history learning supports this goal by engaging students in a structured, inquiry-based process that activates the cognitive, affective, and psychomotor domains (Hosnan, 2014). This model includes the following steps: observing, formulating questions, hypothesis-building, data collection, data analysis, drawing conclusions, and communicating findings. In the context of history education, these steps can be adapted to historical inquiry, fostering critical thinking and deep engagement with historical sources (Abdullah Sani, 2014).

The first stage—observation—involves students examining historical relics through various media such as images, videos, or direct field visits. This encourages awareness of historical phenomena in their local environment. In Bagan Siapiapi, for instance, students may observe physical remnants from the colonial period, Japanese occupation, or early independence era. They may document these relics using photography or digital tools, then categorise them using tables or visual maps. This form of active

engagement transforms students into historical investigators rather than passive recipients of knowledge (Hosnan, 2014).

In the questioning phase, students are encouraged to formulate historically relevant inquiries. According to Kuntowijoyo (2005), this may include questions such as, “Why did this event happen?”, “How did this structure come to exist?”, or “What impact did this artifact have on society?” These questions serve as entry points for deeper historical exploration, encouraging students to engage in historical reconstruction.

The third phase—data collection—may be conducted through field trips, interviews with local community members, or digital research using archives such as KITLV or the Amsterdam and Leiden Libraries. Students collect qualitative and quantitative data, document findings, and triangulate their sources to ensure accuracy and depth. In this stage, students actively participate in historiographical processes, developing essential research skills.

In the reasoning or associating stage, students interpret the data they have collected by linking it to broader historical narratives. They might assess whether certain relics are connected to Islamic kingdoms, the Dutch colonial administration, or post-independence political structures. This process reflects the historical thinking model proposed by Seixas (2017), in which students use evidence to construct historical arguments, identify continuity and change, and recognise the ethical dimensions of historical inquiry. Through such reasoning, students engage in higher-order thinking processes that reflect real historical scholarship.

The final step in the scientific approach—dissemination or communication—asks students to present their findings in formats such as academic papers, multimedia presentations, or teaching modules. These outputs promote both student-centred learning (SCL) and meaningful learning, allowing students to transform knowledge into new understandings. The "what-if" question format can be applied here to promote critical engagement and alternative historical thinking.

This scientific approach supports student-centred learning by promoting collaboration, critical inquiry, and knowledge validation. According to Majid and Andayani (2012), the role of the educator in this context is not to lecture, but to facilitate, mediate, and moderate learning. Educators design activities that encourage exploration, elaboration, and confirmation, supporting students in co-constructing historical understanding. This pedagogical stance aligns with constructivist principles and ensures that students not only understand historical content but also engage with it analytically and reflectively.

The effectiveness of this model also depends on its ability to foster values-based education. As Abdullah Sani (2014) outlines, high-quality education cultivates six core dimensions: basic knowledge, application, integration, human dimension, caring, and learning how to learn. These values are particularly important in history education, which seeks to shape not just informed citizens but morally grounded and empathetic individuals.

Heritage-based learning in Bagan Siapiapi plays a crucial role in overcoming limitations often associated with local history. Traditional history curricula often marginalise local narratives in favour of national or global events. This imbalance can alienate students from their immediate environments and diminish the relevance of historical study. By focusing on Bagan Siapiapi’s relics and narratives, educators can reintroduce emotional and contextual proximity to learning. This fosters historical empathy, enabling students to connect personally with historical events and actors (Jiménez Pérez et al., 2010).

In practical terms, heritage-based learning can involve on-site investigations, virtual explorations, or digital archiving projects. Students can be guided through the process using student activity sheets (LKPD or LKS) that scaffold the learning process. These materials prompt students to observe, record, and analyse their findings systematically. Moreover, collaborative learning activities promote peer interaction and collective meaning-making, which are central to 21st-century skills development.

Supervision and assessment are integral components of this process. Formative assessment can be used to provide feedback during the research and reflection phases, while summative assessment can

evaluate final outputs such as presentations or papers. These evaluations help ensure that students remain accountable and engaged throughout the learning journey.

For heritage-based history education to be effective, it must establish clear connections between local history and national narratives. Students must be able to recognise how events in their locality contribute to or reflect larger historical processes. For example, understanding colonial architecture in Bagan Siapiapi can serve as a gateway to broader discussions on imperialism, resistance movements, or cultural syncretism.

To ensure the success of heritage-based history learning, the following five stages—based on the scientific approach—can be operationalised:

1. Observation: Students identify and document historical relics related to major historical periods (e.g., colonialism, Japanese occupation, independence). Technology can assist in this process through apps, digital maps, and online databases.
2. Questioning: Students generate historical inquiries that relate local relics to broader themes. These might include questions on causes, consequences, and significance of particular artifacts or sites.
3. Information Gathering: Using fieldwork, interviews, and online research, students compile diverse data sources. These activities reinforce research skills and promote triangulation of information.
4. Reasoning or Conceptual Association: Students analyse and interpret the historical significance of the relics. They contextualise these artifacts within national and global historical frameworks, and may conduct mini-research projects to substantiate their findings.
5. Dissemination: Students share their insights through written reports, oral presentations, or digital storytelling. These activities reinforce communication skills and encourage reflection on the values and meanings derived from the historical investigation.

In conclusion, heritage-based history education in Bagan Siapiapi, grounded in a scientific approach, represents a transformative model for teaching history. It aligns with national curriculum objectives while also addressing students' need for meaningful, relevant, and engaging learning experiences. By fostering critical thinking, research skills, collaboration, and moral development, this model supports the overarching goal of history education: the formation of a well-informed, empathetic, and civically responsible national character (Hasan, 2012; Majid & Andayani, 2012).

3.3 Learning History Using a Scientific Approach in the Industrial Revolution 4.0 Era

The Industrial Revolution 4.0 era is characterised by increased connectivity, interaction, and development of digital systems, artificial intelligence, and virtual reality (Lase, 2019). Education 4.0 is a response to the needs of the industrial revolution 4.0, where humans and technology are aligned to create new opportunities creatively and innovatively. Fisk (2017) explains, "that the new vision of learning encourages students to learn the skills and knowledge needed and identify sources to learn those skills and knowledge. The development of technology and information in all lines impacts various aspects of human life. Humans can gain more knowledge from the progress of the Industrial Revolution era. Does progress only have an impact on the progress of human life facilities? This is where progress is utilised to achieve learning goals. The competencies possessed by educators are utilised collaboratively with students to achieve educational goals.

According to Fisk (2017), there are nine trends or tendencies related to Education 4.0, namely as follows: 1) learning at different times and places, 2) individual learning, namely, students will learn with learning tools that are adaptive to their abilities. 3) Students have the choice to determine how they learn. 4) project-based learning, 5) field experience means that technological advances enable effective domain-specific learning, thus providing more space for acquiring skills that involve student knowledge and face-to-face interaction, 6) data interpretation means that the development of computer technology will eventually take over the analysis tasks that are done manually (mathematics), and

immediately handle every statistical analysis, describe and analyzeanalyze data, and predict future trends, 7) diverse assessments. Measuring student abilities through conventional assessment techniques such as questions and answers will no longer be relevant or adequate; 8) student involvement, namely student involvement in determining learning materials or curriculum, becomes significant; and 9) the shift in the 4.0 education trend above is the primary responsibility of teachers towards students.

Fisk (2017) above describes education in the Industrial Revolution 4.0 era, encouraging educators to change the learning paradigm in a limited space, at a particular time, and with limited media and teaching materials; now, there is a significant change. The knowledge obtained by students can be better than the knowledge received by educators. The position of educators is expected to no longer be the determinant of knowledge/truth limited by learning resources, but unlimited knowledge that can be obtained through advances in technology and information systems. Knowledge spread through technological advances and information systems can be accessed anytime and anywhere as long as it is supported by technological devices and information systems, so a paradigm shift in learning is needed (Arends, 2012). The change in the learning paradigm does not eliminate the substance of learning, especially history learning. However, the change in the learning paradigm encourages students to do many activities to gain knowledge about the concepts and values in the available teaching materials (Kantz & Wineburg, 2002). In this case, learning steps are needed that encourage students to carry out learning activities actively, creatively, and critically so that mastery of concepts, identification of values, and concluding or carrying out reflection and interpretation become learning activities that support strengthening their reasoning and emotional powers to achieve maximum achievement in learning.

The following steps can be taken in history learning in the Industrial Revolution 4.0 era to strengthen the objectives of history learning. It is important to understand that technological advances are used to achieve learning objectives, not the objectives themselves (Anderson & H. Ronald, 1987; Miftah, 2013). Once a comprehensive understanding has been established, implementing it based on its function manifests that understanding. History learning aims to shape national character, as seen in various historical events. Meanwhile, technology and information products are media to facilitate the achievement of history learning objectives, so that students can strengthen their understanding and carry out expected behaviours in history learning because character building can be carried out through curriculum interventions and habituation through role models (Komalasari & Saripudin, 2022).

Referring to the historical learning of the scientific approach in the Industrial Revolution 4.0 era, it can be packaged through the following steps:

1. Observing: Students can observe historical events through digital media that have been directed or the results of student creations to observe from the learning design that will be started, in this initial step students observe various historical relics spread across various areas of Bagan Siapiapi which are categorizedcategorized as historical relics from the colonial and imperial era, the beginning of independence or the beginning of the Indonesian government and this can be a trigger for students to be stimulated that in areas in Riau Province there are historical relics related to various events during the colonial era or the beginning of the independence government.
2. Question and answer: Students are given space to question various historical relics in Bagan Siapiapi. They will be asked the following questions: Why are there historical relics in Bagan Siapiapi? How are these relics in Bagan Siapiapi? What is the impact of the existence of historical relics in Bagan Siapiapi on the lives of the Bagan Siapiapi community at that time, related to the function and influence of the existence of historical relics in Bagan Siapiapi? The questions above refer to the concept of historical reconstruction, making it easier for students to identify and group data found in information gathering activities.
3. Information Collection: In this case, students collect information related to questions that arise in data collection activities related to historical heritage in Bagan. Siapiapi: Students can search KITLV or other sources using various digital applications. Another thing that is no less important is data collection through location searches, documentation, and design in the form of media or

teaching materials that are developed digitally. Therefore, students are assigned to search for data and search for data related to historical heritage. Students are expected to search for data directly at data source centres such as the Tourism Office, Bagan. Siapiapi City Library, at the homes of Bagan residents and Siapiapi community leaders, can utilise journals, papers, and theses, including e-books.

4. Reasoning or association: Students continue the data collection process by reasoning or association. Reasoning or association is a student's thinking activity that connects one concept with another concept to the results found (Abdullah Sani, 2014). In this case, students will be trained to connect one piece of knowledge with another. If the existence of historical relics is located in this area, in other cases, students conduct historical reconstruction based on the historical relics found. Why are there several historical relics in this area? How did the process of the existence of historical relics, and what impact did the existence of historical relics have in that phase? Students can obtain quite a lot of information in the form of videos, sounds, images, illustrations, and animations available on applications such as YouTube, Google, Facebook groups (can join historical communities), and so on. Therefore, students can reconstruct historical events based on known historical relics from this process. After conducting historical reconstruction based on these historical relics, the next step is to identify the values contained in the events that underlie the existence of these historical relics. This is crucial considering the goal of history learning, which is to build student awareness through identifying character values (Ministry of National Education, 2020) from events found in historical relics. The following are historical relics that have been identified through historical reconstruction:

Table 1. Historical Heritage Sites in Bagan Siapiapi and Their Contribution to Character Education

No	Historical heritage	Short description	Character Values	Description/source
1	CH Osman's Suluk House	The First Suluk in Bagan Siapiapi, the Naqsabandiyah sect which at that time was the main teaching of the Siak Sri Indera Pura Sultanate with the suluk leader CH Osman.	Religious values, values of tolerance	
2	St. Peter and Paul Catholic Church	This church is the 3rd largest Catholic church in Sumatra, this church is the church of Saints Peter and Paul in Bagan Siapiapi which was founded in 1933.	Religious values, values of tolerance	
3	Wahidin University	Wahidin School is one of the oldest schools in Riau, established in 1915. It was founded in Sungai Garam under the name KIM TJUN. After independence, its name was changed to Wahidin, after a prominent figure in the national movement.	Love the country, care about the people	
4	House of the Chinese Kapitan Oei HiTam	The Captain's House is a guest house built in 1917 to welcome guests from outside the area. It serves as a cultural heritage site and has contributed to the Bagan Siapiapi community.	Love for the Country, Care for the Community	
5	Bagan Madjoe Bank	Bank Bagan Madjoe was established for the development of the community's economy in 1917. Bank Bagan Madjoe was given the BRI registration number 0002 and is located on Jalan Merdeka Bagan Siapiapi.	Social Care, Love of the Homeland	

5. Students can convey information through available applications in this information delivery activity. Educators facilitate what media students use to convey information, how to convey it, and the delivery package. Once agreed, educators can assess students' work through discussions related to why historical relics were found in Bagan Siapiapi, how the historical relics in Bagan Munculnya Siapiapi emerged, and what impact the presence of historical relics in Bagan Siapiapi has on them. After reconstructing history from various sources, students mention the values related to historical relics in each reconstructed event. This can be played in the form of sociodrama or role-playing. The realisation of identification and reinforcement of the purpose of learning history is to foster national awareness. Students are given space and time to convey it creatively in a particular form. This certainly requires patience in science learning activities using digital instruments. At least what is contained in the LKM or LKPD can support students in science learning activities.

History learning through a scientific approach grounded in historical heritage, particularly in the context of Bagan Siapiapi during the Industrial Revolution 4.0, significantly enhances the learning process. This approach enables students to engage in practical, critical, contextual, and creative learning, supported by the diverse technological tools and applications available in the digital era. More importantly, such an approach aligns with the core objective of history education: to develop students' ability to identify and internalise the values embedded within historical content. For example, when studying themes such as the arrival of colonialism and imperialism or the early years of Indonesian independence, students are encouraged to reflect deeply on the human experiences behind these events.

To foster affective learning, educators may employ reflection sheets that include prompts such as, *"If a foreign nation occupied your homeland, how would you feel?"* These questions guide students toward empathy and moral understanding, encouraging them to appreciate the sacrifices made by past generations. By recognising the hardships endured during forced occupation, students are guided to value national heroes and uphold respect for fellow citizens, regardless of religious or ethnic differences. This not only reinforces a sense of national unity but also embeds the values of tolerance, respect, and historical appreciation.

Such an educational model allows students to acquire both knowledge and values, integrating cognitive and affective dimensions in the learning process. The synergy between historical content and value-based reflection fosters meaningful learning, in line with the broader goals of Indonesian national education. Specifically, it supports the objectives outlined in Law No. 20 of 2003 on the National Education System, which emphasises the development of learners who are intellectually capable, emotionally aware, and morally grounded.

4. CONCLUSION

This study concludes that strengthening history learning through a scientific approach based on the historical heritage of Bagan Siapiapi in the era of the Industrial Revolution 4.0 enables a contextual, creative, and student-centered learning experience that fosters both historical understanding and character development. The main findings reveal that various heritage sites in Bagan Siapiapi—such as the Suluk House, Methodist and Catholic Churches, Ing Hok King Temple, Wahidin College, and others—embody core character values, including religious tolerance, patriotism, and social concern. These values can be effectively integrated into history learning using scientific learning steps such as observation, inquiry, reasoning, and communication, supported by methods like role-playing or sociodrama. However, the study is limited by its reliance on qualitative methods without empirical measurement of the actual impact on students' character development. Additionally, the scope is confined to the Bagan Siapiapi area, which may limit generalizability. Future research is encouraged to employ mixed-method approaches to quantitatively assess the effectiveness of this model in fostering

character education and to explore the integration of local historical heritage in other regions to support the broader goals of national education in Indonesia.

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