

Utilization of the Metanduno Cave Site as a Historical Learning Resource to Improve Understanding of Local History

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Abstrak

Penelitian ini bertujuan untuk mengkaji pemanfaatan Situs Gua Metanduno sebagai sumber belajar sejarah lokal dalam pembelajaran sejarah di SMA. Metode yang digunakan adalah penelitian kualitatif dengan jenis deskriptif dan pendekatan studi kasus tunggal. Data dikumpulkan melalui wawancara mendalam, observasi langsung, dan studi dokumentasi. Informan penelitian dipilih menggunakan teknik purposive sampling yang melibatkan 7 (tujuh) orang informan, yaitu satu pemerintah desa, satu juru kunci, dua pengelola situs, dan tiga guru. Validitas data diuji melalui triangulasi data, peneliti, teori, dan metodologis. Analisis data menggunakan model interaktif Miles dan Huberman yang meliputi pengumpulan data, kondensasi data, penyajian data, serta penarikan kesimpulan dan verifikasi. Hasil penelitian menunjukkan bahwa Situs Gua Metanduno memiliki potensi besar sebagai sumber belajar sejarah karena menyimpan tinggalan prasejarah berupa lukisan cadas yang berusia sekitar 67.800 tahun dan memiliki nilai historis tinggi. Berdasarkan hasil wawancara situs ini dapat dimanfaatkan melalui kegiatan kunjungan lapangan, sebagai sumber materi pembelajaran, dan sebagai media pembelajaran berbasis sejarah lokal. Pemanfaatan situs tersebut mampu menghadirkan pembelajaran yang lebih kontekstual, konkret, dan bermakna serta mendukung pemahaman sejarah lokal siswa.

Kata kunci: gua metanduno, sumber belajar, pembelajaran sejarah.

Abstract

This study aims to examine the use of the Metanduno Cave Site as a source of local history learning in history teaching in high schools. The method used was qualitative research with a descriptive type and a single case study approach. Data were collected through in-depth interviews, direct observation, and documentation studies. Research informants were selected through a purposive sampling technique and comprised 7 (seven) participants, including one village government representative, one site custodian, two site managers, and three history teachers, who were chosen based on their knowledge of and involvement in the management and educational utilization of the Metanduno Cave Site. Data validity was tested through data triangulation, researchers, theories, and methodologies. Data analysis used the interactive model of Miles and Huberman which includes data collection, data condensation, data presentation, as well as drawing conclusions and verification. The results of the study indicate that the Metanduno Cave Site has great potential as a source of history learning because it contains prehistoric remains in the form of rock paintings that are approximately 67.800 years old and have high historical value. Based on the interview results, the site can be utilized through field visits, as a source of instructional materials, and as a local history-based learning resource. Utilizing this site can provide more contextual, concrete, and meaningful learning and support students' understanding of local history.

Keywords: metanduno cave, learning resources, history learning.

INTRODUCTION

History learning has an important role in shaping students' identities through

understanding past experiences, developing historical awareness, and the ability to interpret the relationship

between history, social life, and cultural identity in the context of contemporary life (Taivalantti et al., 2024; Akla et al., 2025; Sorokina, 2024; Alven, 2024; Grever & Adriaansen, 2023; Cairns & Garrard, 2024; Museus & Sasaki, 2024; Pratama et al., 2024). Students not only gain knowledge about past facts and events, but also develop historical awareness that helps them understand the relationship between past experiences, present realities, and various possibilities that could occur in the future (Noviyanty & Karima, 2024). Local history is an important part of history learning because it can provide a learning experience that is closer to the social and cultural environment of students, thus helping them understand historical events in a more contextual, relevant, and meaningful way in everyday life (Ramadhana et al., 2024; Anwar, 2024; Mohamad et al., 2024). The use of local history in learning enables students to recognize the cultural heritage found in their area so that the learning process becomes more contextual, relevant, and helps strengthen understanding of the identity and cultural values of the local community (Hidayat & Setiawan, 2024). Thus, the integration of local history in history learning can strengthen regional identity while simultaneously fostering awareness to protect and preserve cultural heritage as part of the nation's identity.

History learning at the high school level still tends to be oriented towards the use of textbooks as the main learning source so that students gain more theoretical understanding, while the use of more contextual and diverse historical learning sources has not been used optimally in the learning process (Kurnia, 2024; Ardiansyah et al., 2022). This condition causes history learning to still often be understood as a process of mastering facts, chronology, and past events that are rote, so that its relationship with social reality, the surrounding environment, and the contextual experiences of students has not been fully integrated into the learning process (Fitroh, 2025; Afwan et al., 2025; Fitrianto & Fahrudin, 2024; Wibowo & Fitriany, 2025; Anwar, 2024; Wibowo & Djono, 2024; Cuprianto & Firmansyah, 2023). Various local historical potentials and various cultural sites found in the student's environment can be utilized as learning resources that support contextual learning because they are able to provide a more real and relevant learning experience, and help students understand historical material through its connection to the local social and cultural environment (Mohamad et al., 2024).

Historical and cultural sites have great potential as learning resources because they provide authentic evidence that can help students understand past events in a more concrete, contextual and

close to the reality of people's lives so that the process of learning history becomes more meaningful (Mohamad et al., 2024; Ramadhana et al., 2024; Hidayat & Setiawan, 2024; Fitrianto & Fahrudin, 2024). The existence of various historical relics allows the learning process to take place not only in the classroom, but also through direct interaction with objects and environments that have historical value. By utilizing historical and cultural sites as learning resources, students can gain a more contextual and meaningful learning experience because historical material is understood through direct interaction with cultural heritage that represents past life, thus strengthening their understanding of historical events in a more real and reflective manner (Mbura et al., 2025; Mohamad et al., 2024).

The Metanduno Cave site, located in the Liang Kabori karst area, Muna Regency, Southeast Sulawesi, is an important prehistoric site that contains various traces of past human activities in the form of rock paintings, archaeological remains, and cultural heritage that have historical and scientific value for the study of prehistoric life in Indonesia (Oktaviana et al., 2026; Sope, 2024; Permana, 2024; Setiawan & Rahma, 2024; Tang et al., 2020). The existence of cultural remains in the form of rock art and various archaeological findings at prehistoric cave sites has important historical value

because it provides material evidence that can be used to reconstruct the life, activities, and cultural development of prehistoric communities in a region (Sope, 2024; Fauzi et al., 2024). Metanduno Cave contains various archaeological evidence and prehistoric rock art that provide important information for understanding the development of culture, technological capabilities, symbolic behavior, and life patterns of early humans in the Sulawesi region and the Wallacea region more broadly (Oktaviana et al., 2026). This site also contains educational potential that can be used as a learning resource to enrich students' understanding of local history and regional cultural heritage (Informant. Darma, 2026).

The presence of rock paintings and various prehistoric remains in Metanduno Cave indicates that the area was once a hub for human activity in the past. Artifacts and visual representations found in prehistoric cave sites provide important information about life, cultural systems, social activities, and human relationships with their natural environment, thus serving as valuable data sources for understanding the dynamics of prehistoric society (Nabila & Namira, 2024; Widiyanto, 2024). These findings are an important resource in understanding the development of early civilizations that once existed in Southeast Sulawesi. Therefore, Metanduno Cave holds significant historical value as evidence of

the existence and dynamics of human life during prehistoric times.

The utilization of the Metanduno Cave Site in local history learning is important because it provides a learning resource derived from students' immediate environment. The use of local history-based learning resources enables students to connect historical materials studied in the classroom with historical remains found in their surrounding area, thereby making their understanding of past events more concrete, contextual, and closely related to their daily lives (Zidah & Afandi, 2025). Such learning experiences have the potential to enhance students' understanding of local history while fostering greater appreciation for the cultural heritage of the local community. However, previous studies have primarily focused on the use of historical sites in general as learning media or educational resources, whereas research examining local prehistoric sites, particularly the Metanduno Cave Site, remains limited. This lack of research has resulted in insufficient information regarding the potential, relevance, and implementation of the Metanduno Cave Site as a local history learning resource at the senior high school level. Therefore, this study seeks to address this research gap by investigating the utilization of the Metanduno Cave Site in local history education.

Previous studies have demonstrated that local history and cultural heritage sites possess significant potential as resources for history education. Wiyanarti et al., (2020) emphasized that local history can be developed as a contextual learning resource, Fikri et al., (2022) found that local history-based learning enhances students' historical thinking skills, and Zidah and Afandi (2025) showed that local historical sites can strengthen students' understanding of their regional history. The similarity between these studies and the present research lies in their focus on utilizing local history as a learning resource in history education. However, previous research has not specifically examined the use of a prehistoric rock-art cave site as a local history learning resource at the senior high school level. Therefore, the novelty of this study lies in its investigation of the potential and forms of utilization of the Metanduno Cave Site as a local history learning resource to enhance students' understanding of local history.

The various potentials of the Metanduno Cave Site indicate that it can be utilized as a learning resource to support local history instruction in high school. The site's use in learning activities remains understudied, particularly regarding its contribution to students' understanding of local history. Student engagement with historical sources from

the surrounding environment has the potential to provide a more concrete and meaningful learning experience. This situation suggests the need for a more in-depth study of the use of the Metanduno Cave Site in history instruction as an effort to connect learning materials with the local context. Based on this, this study focuses on examining how the use of the Metanduno Cave Site can support students' understanding of local history in history instruction in high school.

METHODS

This research was conducted in Metanduno Cave. Metanduno Cave is located in Liangkobori Village, Lohia District, Muna Regency, Southeast Sulawesi. Metanduno Cave was chosen as the research location because it contains prehistoric remains in the form of rock art and archaeological evidence of high historical value, making it a potential source for learning about local history that is contextual and relevant. The research method used was qualitative research. The type of research used was qualitative description with a single case. In qualitative research, the researcher serves as the primary instrument who determines the research focus, selects informants as data sources, collects data, assesses data quality, analyzes and interprets the data, and draws conclusions based on the research findings (Stige et al., 2024). The data collection techniques in this study are: 1)

In-depth interviews (*indepth interviewing*);, The sampling determination technique uses *purposive sampling*. Informants were selected using a purposive sampling technique, while data were collected through in-depth interviews, observations, and document analysis to obtain information relevant to the research objectives (Creswell & Poth, 2018; Flick, 2022). The informants in this study were people who had a lot of knowledge about the research object, namely La Ode Farlin (Village Head), La Hada (Caretaker), Laode Samada (Site Guard), Laode Darma (Site Guard), Alimedes (History Education Teacher), Irna Sariati (History Education Teacher), Suratman (Sociology Teacher);, 2) Direct observation, the researcher went directly to the research location (Metanduno Cave);, 3) Documents, researchers search for/collect data, both written documents (*hardcopy*) and electronic documents (*soft copy*) which is related to research. Data validation techniques use triangulation, namely: 1) Data triangulation (*Data triangulation*) is carried out by testing the validity of data sources obtained through interviews, document studies, and observations; 2) Researcher triangulation (*Investigator triangulation*) relevant research results related to the problem to be researched will be compared; 3) Theory triangulation (*Theory triangulation*) is done by using patterns, relationships, and including explanations

that emerge from the analysis to find themes;; 4) Methodological triangulation (*Methodological triangulation*) is done by collecting similar data using different methods. The analysis technique used in this research is an interactive analysis technique. Interactive analysis means that every data obtained from the field is always interacted with or compared with other data units (Miles & Huberman, 2014), namely: In the interactive analysis process there are 4 components that must be understood by researchers, namely: 1) Data collection (*Data collection*), namely data collected through observations at the Metanduno Cave Site, interviews with teachers and students, and documentation to obtain information regarding the use of the site as a source of historical learning and its contribution to the understanding of local history;; 2) Data condensation (*Data condensation*);, namely the data that has been obtained is then selected, simplified, and focused on information that is relevant to the use of the Metanduno Cave Site in history learning and its influence on students' understanding of local history;; 3) Presentation of data (*Data display*), namely the condensed data is presented in the form of narrative descriptions, matrices, or tables to make it easier for researchers to understand the pattern of use of the Metanduno Cave Site as a source for learning history;; 4) Drawing conclusions/verification (*Conclutions*

drawing/ verfyng), namely, conclusions are drawn based on research findings regarding the use of the Metanduno Cave Site as a source of historical learning and then verified through data triangulation so that the research results have a good level of validity.

RESULTS AND DISCUSSION

A. General Description of the Metanduno Cave Site

Based on observations made by researchers, the Metanduno Cave site is located in Liangkobori Village, Lohia District, Muna Regency, Southeast Sulawesi. The Metanduno Cave site is one of the prehistoric sites located in a karst hill area. The cave is located in an environment still dominated by natural vegetation, with geographical conditions consisting of limestone that forms karst cliffs. Researchers must travel by land and continue on foot to the cave area. The environmental conditions around the site are still relatively well maintained, so various natural elements that support the site's existence can be properly observed.



Figure 1. Front View of Metanduno Cave (source: Darma, 2026)

Field observations indicate that Metanduno Cave is well-maintained and exhibits the characteristics of a prehistoric cave. Rock paintings are found on the walls, evidence of past human activity. The cave's interior is quite spacious, with natural lighting entering through the cave entrance. Researchers found that efforts to preserve and utilize the site as a learning resource still need to be improved to ensure its historical and cultural value is maintained and optimally utilized by the community and educational institutions.



Figure 2. Wall Paintings in Metanduno Cave (source: Darma, 2026)

According to one informant, "the paintings in Metanduno Cave have been around for around 60,000 years" (Darma, 2026). This is in accordance with the statement Octaviana (2026) in his article entitled *Rock art from at least 67,800 years ago in Sulawesi* suggests that the rock art in Metanduno Cave dates back 67,800 years. This finding indicates that Metanduno Cave is one of the oldest rock art sites ever discovered in Sulawesi, and even in the world. The existence of these extremely ancient rock paintings provides

important information regarding the development of symbolic abilities, culture, and human life during prehistoric times in Southeast Sulawesi.

According to one informant, "Metanduno Cave was first discovered by residents of Liangkobori village named La Jiwa and La Hadha" (Samada, 2026) before then attracting the attention of archaeological researchers for further study. The existence of this site became increasingly known after the discovery of a number of rock paintings showing traces of human activity during the prehistoric period. The results of archaeological research conducted at the site revealed various important findings that have high scientific value in the study of the history and prehistory of Sulawesi. Since the identification and research process was carried out, Metanduno Cave has become one of the prehistoric sites that has received attention because it contains evidence of human culture that is tens of thousands of years old.

B. The Potential of the Metanduno Cave Site as a Source for Learning History at the senior high school level

The Metanduno Cave site holds high historical value and holds various evidence of human life during prehistoric times. This historical value is reflected in the presence of rock paintings on the cave walls, which serve as traces of past human activity. One informant stated, "This area was once inhabited by prehistoric

humans." This is in line with research findings. Oktaviana et al., (2026); Aubert et al., (2026); Hidayat, (2026) stated that Metanduno Cave is thought to have been part of the living space of prehistoric humans who left traces of their activities through rock paintings on the cave walls. Brumm et al., (2026); Hardiantoro, (2026) added that as one of the oldest rock art sites in the world, Metanduno Cave provides important evidence regarding the existence and activities of prehistoric humans in the Southeast Sulawesi region. Metanduno Cave is a space for human activity that has the ability to think symbolically and express their ideas through art. The existence of this evidence provides information regarding the development of human culture during the prehistoric period in Southeast Sulawesi. The Metanduno Cave site can be used as a historical source that helps explain the journey of human life in the past more concretely. This is reinforced by one informant who stated that "the rock paintings in Metanduno Cave can be used in history learning in high school on the material of prehistoric human life and the cultural products of prehistoric communities in Indonesia" (Alimedes, 2026).

The presence of rock paintings in Metanduno Cave is an important source of historical information for the local community, especially high school students. By studying the motifs, forms,

and distribution of the rock paintings, students can understand various aspects of the lives of the prehistoric humans who once inhabited the area. One informant stated that "the information contained in this site provides an overview of life patterns, social activities, and the relationship between humans and their natural environment" (Suratman, 2026). This is in line with Oktaviana et al., (2026); Brumm et al., (2017); Aubert et al., (2026) conveyed that the existence of this site shows that the Southeast Sulawesi region has played an important role in the development of human civilization since prehistoric times, as evidenced by the discovery of the oldest rock art in the world, the symbolic cultural activities of ancient humans, and its position as an important migration route for modern humans in the Wallacea region. Metanduno Cave has made a major contribution to enriching local historical studies which have so far been limited to written sources.

Based on research findings, Metanduno Cave has highly relevant historical value and is therefore suitable for use as a history learning resource in schools. Utilizing this site allows students to directly study historical events and relics through tangible evidence that can still be observed today. The presence of learning resources originating from the local environment helps students connect historical material to the context of local

life. Thus, history learning focuses not only on memorizing facts but also fosters a deeper understanding of local and national historical developments.

C. Forms of Utilization of the Metanduno Cave Site in History Learning

Based on research conducted, the Metanduno Cave site has significant potential for use in history teaching, particularly in strengthening local history materials at the high school level. Interviews with history teachers indicate that "the site's historical value can serve as a learning resource to support classroom learning" (Sariati, 2026). In line with this, Pratama et al., (2025); Blair, (2016); Nur, (2025); Jones, (2025) states that archaeological evidence found at historical sites allows students to gain a more concrete, contextual, and meaningful learning experience than simply studying material from textbooks because students can interact directly with historical sources, make observations, and build historical understanding based on real-world experiences. The use of local historical sites is also considered capable of strengthening the connection between learning materials and students' surroundings.

Observations show that the use of the Metanduno Cave Site in history learning can be implemented in various ways, tailored to learning objectives and

school conditions. One informant stated that teachers do not always have to take students directly to the site, but can utilize various information and documentation from the site as learning materials (Suratman, 2026). This is in line with Fikri et al., (2022); Wiyanarti et al., (2020) states that history learning not only focuses on conveying historical facts, but also provides opportunities for students to explore historical sources in their area, thereby fostering historical understanding, historical awareness, and the connection between learning materials and their local context. This makes history learning more contextual and meaningful for students.

Based on data analysis, several uses of the Metanduno Cave Site can be applied to history learning. These uses include:

1. Field Visit (*Field Study*)

Field trips are one way to utilize the Metanduno Cave Site and are considered effective in history learning. Students can directly observe the site's condition, the surrounding environment, and the various historical relics found within the cave. This hands-on learning experience allows students to gain a more concrete understanding of the historical material being studied. "Field trips also provide opportunities for students to conduct observations and gather information independently" (Informant, Farlin, 2026).

Observations show that field trips can help students connect historical

material learned in class with historical facts found in their surroundings. "Students not only receive information from the teacher, but are also actively involved in the learning process through observation and discussion" (Interview, Sariati, 2026). This situation encourages the formation of a more meaningful and contextual learning experience. Therefore, the utilization of the Metanduno Cave Site through field trips can be beneficial. *field study* can improve the quality of history learning while introducing local cultural heritage to students.

2. Learning Material Sources

The Metanduno Cave site can be used as a source of history learning materials relevant to the high school curriculum, particularly on the life of prehistoric humans and the development of Indonesian culture. Various discoveries at the site can be used to explain human life in the past. The presence of rock paintings and other archaeological evidence provides information that can enrich the learning materials contained in textbooks. By utilizing learning resources from the local environment, students can understand history material more contextually.

Interviews with teachers indicate that "using the Metanduno Cave Site as a source of learning materials can help students understand the relationship between national and local history" (Alimedes, 2026). Information obtained

from the site can be used as a concrete example in explaining the development of prehistoric human culture in Indonesia. The use of local learning resources also provides opportunities for students to learn about the history of their own region. Therefore, the Metanduno Cave Site has an important contribution in supporting the history learning process that is closer to students' lives.

3. Local History-Based Learning Media

The Metanduno Cave site can also be utilized as a local history-based learning medium through the use of photos, videos, research documentation, and presentation materials containing information about the site. Utilizing learning media sourced from local sites can help students gain a clearer understanding of the historical objects being studied. Furthermore, using media that depicts the site's actual conditions can increase student attention and interest during the learning process. Local history-based learning media can be an effective alternative for schools that are unable to conduct field trips.

Interview results indicate that the use of local history-based learning media provides a more engaging learning experience than solely using textbooks as the primary learning resource (Sariati, 2026). Through visual media displaying the conditions of the Metanduno Cave Site, students can observe various historical evidence without having to be directly present at the site. This helps students

understand historical material more easily and deeply. Utilizing the Metanduno Cave Site as a local history-based learning medium can be one effort to improve the quality of history learning while introducing the richness of regional history to the younger generation.

CONCLUSION

Based on the research results, it was found that the Metanduno Cave site has significant historical value as one of the prehistoric sites in Muna Regency, preserving evidence of past human activity through the presence of rock paintings on the cave walls. The discovery of rock art dating back tens of thousands of years indicates that this site has high historical value and provides information about the life and cultural development of prehistoric humans in Southeast Sulawesi. This historical value makes Metanduno Cave potentially useful as a historical learning resource relevant to the material on prehistoric human life at the high school level. The existence of this site also provides an opportunity for students to understand local history through historical evidence originating from the surrounding environment. The results of the study indicate that the use of the Metanduno Cave site in history learning can be done through field visits, use as a source of learning materials, and the use of local history-based learning media. Through field visits, students gain a more

concrete learning experience because they can directly observe various historical remains found at the site. Utilizing the site as a source of learning materials helps students understand the relationship between local history and national history in a more contextual way. The use of local history-based learning media allows information about the site to still be utilized in the learning process even if field visits cannot be carried out. Thus, the use of the Metanduno Cave Site as a source for historical learning contributes to enriching historical learning, increasing students' understanding of local history, and fostering appreciation for regional cultural heritage.

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