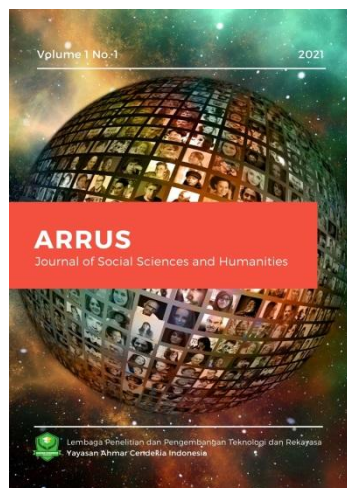




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RESEARCH / REVIEW ARTICLE

Nusantara Mythology as a Green Education Medium: The Implementation of Jagapati Bumi in Earth-Caring Learning for Elementary School Students

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Abstract: This study aims to implement the ecological values embedded in the *Jagapati Bumi* myth for fifth-grade students at SD N 1 Banyuasri through learning activities under the theme *Love the Earth*. The study employed a mixed-methods approach. The qualitative method was used to identify and describe the ecological values contained in the *Jagapati Bumi* myth, while the quantitative method was employed to examine the effectiveness of implementing these ecological values in improving students' understanding of how to care for the Earth. Data on the ecological values were collected through intensive reading of the *Jagapati Bumi* myth, followed by identifying and analyzing the ecological values embedded in the narrative. Data on the effectiveness of implementing these ecological values were collected through observation, documentation, and tests. The qualitative data were analyzed through the stages of data reduction, data display, and conclusion drawing. Meanwhile, the quantitative data were analyzed using inferential statistics, specifically the *t*-test. The findings revealed six major ecological values embedded in the *Jagapati Bumi* myth: ecological balance, conservation and sustainability, environmental ethics and responsibility, the spirituality and sacredness of nature, local wisdom, and biodiversity. Furthermore, the implementation of these ecological values proved effective in enhancing students' understanding of how to care for the Earth. This was evidenced by the results of the non-parametric Wilcoxon Signed-Rank Test, which yielded a test statistic of 336.5 with a *p*-value of 0.0000000312 (well below 0.05). These findings indicate a highly significant difference between the students' pre-test and post-test scores.

Keywords: Love for the Environment, Green Education, Preserving the Earth, Myths, Nusantara

1. Introduction

Environmental issues have become one of the world's foremost concerns due to the increasingly alarming condition of the planet. One of the most significant and pressing consequences is global warming (Chen et al., 2023; Krayneva et al., 2021; Sarbaini et al., 2022). Human-induced global warming has direct impacts on ecosystems and human well-being. Climate change has resulted in rising global temperatures, the melting of polar ice caps, sea-level rise, and an increasing frequency of extreme weather events, including floods, droughts,



and severe storms observed over the past year. One notable example is the wildfire disaster in Los Angeles in 2025. The fires were reportedly triggered by severe drought conditions, which were further intensified by strong offshore winds. The disaster caused substantial loss of life and property, with estimated economic losses reaching IDR 129.6 trillion. According to a report by the World Weather Attribution, climate change significantly increased the likelihood of catastrophic wildfires in the highly vulnerable Los Angeles region (Farooq et al., 2020; Kusumajanti et al., 2021). Their analysis indicates that the warmer and drier climate conditions resulting from climate change created an environment that was far more susceptible to ignition and rapid fire spread, thereby substantially increasing the risk of severe wildfires.

In addition to the situation in Los Angeles, environmental issues have also become a pressing concern in Indonesia. Inadequate waste management, deforestation and forest burning, as well as development practices that disregard Environmental Impact Assessments (EIAs), represent some of the country's most critical environmental challenges. According to the Indonesian Ministry of Environment and Forestry, Indonesia continues to face significant obstacles in managing its national waste, with waste management systems remaining far from optimal (Arisona, 2018; Kweon et al., 2017). These challenges have adverse consequences not only for the environment but also for human well-being. Among the most evident impacts are flooding, landslides, and drought. Furthermore, the Indonesia continues to experience substantial losses of primary tropical forests. This trend has contributed to ecosystem degradation and heightened the risk of ecological disasters (Pramudya et al., 2023; Sulistyani et al., 2022). In addition, numerous hydrometeorological disasters across the country, including floods, landslides, and droughts, highlighting the growing environmental vulnerability associated with climate change and unsustainable land-use practices.

In light of the environmental challenges outlined above, there is an urgent need for all stakeholders to adopt more effective and sustainable environmental management practices. Public awareness and understanding particularly among younger generations regarding environmental conservation and the protection of natural ecosystems must be strengthened. Environmental education and literacy should therefore be introduced from an early age (Baharun & Finori, 2019; Kamila et al., 2024). This is consistent with UNESCO's framework for Education for Sustainable Development (ESD), which emphasizes equipping young people with the knowledge, values, attitudes, and behaviors necessary to promote environmental sustainability and responsible citizenship (Li & Chu, 2021; Nurtanto et al., 2019; Tiwari & Joshi, 2015). Likewise, Consequently, they should be actively engaged in environmental initiatives, including responsible waste management and sustainable environmental conservation efforts (Peek et al., 2020; Rojas et al., 2022).

Students' environmental awareness remains relatively low and needs to be strengthened through the cultivation of environmentally responsible behaviors within the school environment. Schools serve as strategic settings for fostering students' understanding, attitudes, and commitment toward environmental conservation, including ecological awareness, social responsibility, and the capacity to take meaningful action in addressing environmental challenges (Chang et al., 2020; Gunansyah et al., 2021). Various strategies can be employed to achieve this objective, one of which is the integration of environmental themes into classroom learning. Educating younger generations about environmental issues is essential for developing individuals who are environmentally conscious, caring, and responsible toward the natural world. Previous research demonstrates that outdoor environmental education programs can significantly enhance elementary school students' environmental knowledge and pro-environmental attitudes (Maisaroh et al., 2023). Similarly, other study emphasizes the importance of educational approaches that promote sustainable behavioral change and environmental ethics within climate education (Tijsma et al., 2020). Therefore, integrating environmental education into the school curriculum is crucial for nurturing a generation that not only possesses knowledge of environmental issues but also

demonstrates the commitment, values, and practical skills needed to take concrete actions in protecting and preserving the environment.

One distinctive and contextually relevant approach to environmental education is the use of local myths. Within the cultural heritage of the Indonesian archipelago, numerous myths convey moral messages emphasizing the importance of protecting and preserving nature. One such example is the *Jagapati Bumi* myth, which centers on a mythological guardian believed to maintain the balance of the natural world (Bopegedera & Coughenour, 2021; Guamanga et al., 2024). This myth has the potential to serve as an engaging and effective medium for green education among elementary school students. This approach is consistent with the findings who reported that the use of myths and folklore in environmental education enables children to imagine socio-ecological worlds while strengthening their emotional and cognitive connections with nature (Goldman et al., 2018). Their study suggests that mythological narratives can function as effective pedagogical tools for fostering environmental understanding and concern among children. Furthermore, research highlights the importance of integrating nature myths into early childhood education to cultivate appreciation for the natural environment and strengthen children's emotional bonds with nature (Manochkumar et al., 2026). The study demonstrates that myth-based learning can create meaningful and enjoyable educational experiences while encouraging children to develop greater environmental awareness and responsibility.

Through a narrative and culturally grounded approach, students not only learn to appreciate and care for the environment but also gain an understanding of local values that reinforce their cultural identity. Therefore, incorporating the *Jagapati Bumi* myth into Earth-caring learning activities offers an innovative approach to environmental education. Accordingly, integrating local myths such as *Jagapati Bumi* into the elementary school curriculum represents a promising strategy for enhancing environmental awareness and fostering a sense of environmental responsibility among younger generations.

Based on the background described above, this study addresses the following research questions: (1) What ecological values are embedded in the *Jagapati Bumi* myth? (2) How can the *Jagapati Bumi* myth be implemented in Earth-caring learning activities for fifth-grade students at SD N 1 Banyuasri? and (3) How effective is the implementation of the ecological values embedded in the *Jagapati Bumi* myth in improving fifth-grade students' understanding of how to care for the Earth? The primary objective of this study is to foster environmental awareness, understanding, and environmentally responsible behaviors among elementary school students. To achieve this objective, the study employs a literary approach by utilizing the *Jagapati Bumi* myth as an educational medium. Through this myth, fifth-grade students at SD N 1 Banyuasri are expected to develop a deeper understanding of the importance of caring for the Earth. The significance of this study lies in its potential to cultivate elementary school students' awareness and understanding of the increasingly critical environmental issues facing the world today.

2. Method

2.1. Research Design

This study employed a mixed-methods research design, integrating both qualitative and quantitative approaches. The qualitative approach was used to identify and describe the ecological values embedded in the *Jagapati Bumi* myth. The quantitative component employed a quasi-experimental method using a one-group pretest–posttest design to evaluate the effectiveness of implementing the ecological values contained in the *Jagapati Bumi* myth in enhancing students' understanding of environmental stewardship. The research design of the one-group pretest–posttest model is presented in **Table 1**.

Table 1. Model One Group Pretest-Posttest Design

Pretest	Treatment	Posttest
T1	X	T2



This method is used to test the effectiveness of applying ecological values found in the Indonesian myth *Jagapati Bumi* in enhancing the understanding of how to care for the Earth among fifth-grade students in Cluster 4 of Buleleng District elementary schools.

2.2. Data Collection Techniques and Instruments

Data collection for the analysis of ecological values in the myth titled *Jagapati Bumi* involved intensive reading and the recording of ecological values found within the myth, followed by analysis. Data regarding the effectiveness of applying these ecological values were gathered using observation, documentation, and testing techniques. The instruments employed in this study consisted of observation guidelines, data cards, and multiple-choice tests.

Table 2. Observation Guideline Matrix

No.	Aspects Observed	General Indicators	Data source
1	Introductory activities	The teacher prepares the students and connects the lesson material to everyday experiences.	Teacher and students
2	Introduction to the <i>Jagapati Bumi</i> myth	The teacher introduces the figure of "Jagapati Bumi" and the associated ecological message.	Teacher
3	Use of learning media	The teacher uses an animated video and the text of the "Lubuk Larangan" myth.	Teacher, students, and media
4	Listening and storytelling activities	Students watch the video or listen to the story, grasping the content and the ecological message.	Teacher and students
5	Discussion on ecological values	Students discuss the values of protecting the Earth, cleanliness, and environmental responsibility.	Teacher and students
6	STEAM approach	The lesson incorporates elements of science, technology, engineering, arts, and mathematics in a simplified manner.	Teacher and students
7	Simple experiment	Students observe, compare, and propose solutions to environmental issues.	Students
8	Creative poster project	Students work in groups to create posters pledging to protect the Earth.	Students and products
9	Collaboration and creativity	Students collaborate, share tasks, and produce creative work.	Students and products
10	Presentation of work	Students present their posters and explain the environmental message.	Students
11	Reinforcement and feedback	The teacher offers appreciation and corrections, and reinforces the value of environmental care.	Teacher
12	Reflection and conclusion	The teacher and students summarize the lesson and are encouraged to protect the Earth.	Teacher and students

Tabel 3. Data Card

Data No.	Data Source	Data Excerpt	Story Context	Ecological Value	Value Indicator	Interpretation	Learning Relevance

Table 4. Pretest and Posttest Instrument Blueprint

Level Cognitive	Indicator	No. Pretest	No. Posttest
C1 Remembering	Identify basic concepts regarding caring for the Earth, the benefits of trees, and ecological value	1, 6, 11	1, 7, 17
C2 Understanding	Explain environmentally conscious behaviors and the consequences of environmental damage, such as river pollution, deforestation, and the need for water conservation and recycling	4, 5, 7, 9, 10	2, 3, 4, 11, 18
C3 Applying	Determine actions to reduce waste, maintain cleanliness, conserve energy and water, and demonstrate environmental care	3, 8, 12, 13, 16	6, 12, 13, 16, 20
C4 Analyzing	Analyze the causes of environmental degradation, the impact of waste, and ecological behaviors	15, 17, 18	5, 8, 14
C5 Evaluating	Evaluate eco-friendly policies and greening programs	4, 19	9, 15
C6 Creating	Select environmental program designs and environmental slogans or campaigns	2, 20	10, 19

2.3. Data Analysis Techniques



Data regarding the ecological values in the myth titled *Jagapati Bumi* were analyzed using the Miles and Huberman method. The stages of this analysis technique consist of data reduction, data presentation, and qualitative conclusion drawing. Figure 1 illustrates the data analysis process based on the Miles and Huberman model (Zulfirman, 2022).

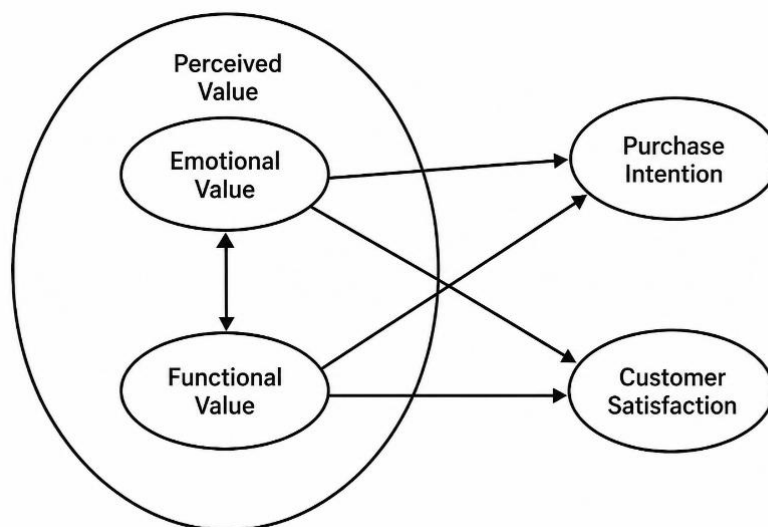


Fig 1. Miles and Huberman Analysis Model

The analysis technique employed to assess the effectiveness of applying ecological values found in the Nusantara myth *Jagapati Bumi* is inferential statistical analysis. Prior to conducting the test for differences, tests for normality and homogeneity were performed. The results of the normality and homogeneity tests for the pretest and posttest data are presented below

Since the p-values for both the pretest and posttest data were well below 0.05, the data were not normally distributed. Furthermore, because the p-value was less than 0.05, the variances between the pretest and posttest groups were not homogeneous, indicating a statistically significant difference in variance. As the data violated the assumptions of normality and homogeneity of variance, a non-parametric statistical test was employed. Specifically, the Wilcoxon Signed-Rank Test was used to examine the differences between the paired pretest and posttest scores. Statistical significance was determined using a significance level of 0.05. A p-value of less than 0.05 indicated a statistically significant difference between the pretest and posttest scores. In addition, the Wilcoxon effect size (r) was calculated to assess the magnitude of the treatment effect for the non-parametric data. The interpretation of the effect size followed Cohen's (1988) guidelines: small ($r \approx 0.10$), medium ($r \approx 0.30$), and large ($r \geq 0.50$) (Peres, 2025)

3. Results and Discussion

3.1. Ecological Values in the Jagapati Bumi Myth

3.1.1. Ecological Balance Value

The value of ecological balance refers to a harmonious relationship among all components of an ecosystem, including humans, animals, plants, soil, water, and air. Such balance is essential for maintaining ecosystem stability and supporting sustainable life. This ecological value is exemplified in the Lubuk Larangan myth. The Lubuk Larangan tradition in Sumatra illustrates an effective indigenous practice for maintaining ecological balance. In Kampuang Surau, West Sumatra, the local community designates a protected section of the Batang Pagiang River as a lubuk larangan to preserve the river's ecological integrity. A similar practice is found in Jambi, where the protected area is known as Lubuk Beringin. A lubuk larangan refers to a designated stretch of river, approximately one kilometer in length, where fishing

is strictly prohibited for local residents. In addition, community members are forbidden from disposing of waste into the river, thereby contributing to the conservation of aquatic ecosystems and the maintenance of water quality.

"Lubuk larangan adalah bagian sungai yang dianggap terlarang untuk diambil ikannya. Biasanya, panjang kawasan terlarang ini mencapai 1 km" (Jagapati Bumi, pg. 15).

According to local belief, individuals who violate these customary regulations are thought to experience misfortune or other adverse consequences. In addition to these cultural beliefs, violators are subject to customary sanctions imposed by the local community. These sanctions may include fines such as one chicken and four pieces of *kain kabung* (traditional cloth), one goat and four lengths of cloth, compensation equivalent to the quantity of fish illegally caught plus ten sacks of cement, or, in more serious cases, temporary exclusion or expulsion from the village. These customary regulations have proven effective in preserving the ecological balance of the river ecosystem by discouraging overexploitation and promoting collective responsibility for environmental conservation.

"Warga saling mengingatkan, jika tak dikendalikan, hasrat manusia untuk mengambil banyak tak akan terbendung. Ketika aturan lubuk larangan diberlakukan, sungai dan sekitarnya jauh lebih tenang dan lebih bersih. Ikan dan tumbuhan pun nyaman berbenih" (Jagapati Bumi, pg. 15).

Based on the excerpt above, community compliance with these customary regulations plays a crucial role in maintaining the ecological balance of the river ecosystem, particularly by supporting the recovery and growth of fish populations. These customary practices are consistent with the principles of sustainable aquatic resource management, whereby regulated resource use and adherence to local customary laws contribute to the conservation of aquatic habitats and the restoration of freshwater biodiversity. Moreover, the active involvement of local communities in protecting and managing river ecosystems represents a strong form of community-based conservation. Local communities possess extensive ecological knowledge, practical environmental experience, and effective social control mechanisms that enable them to sustain ecosystem balance over the long term.

"Tak perlu khawatir. Pantangan mengambil ikan di lubuk larangan membuat populasi ikan meningkat. Akibatnya, ikan mengalami kekurangan pakan alami, dan bergerak ke luar lubuk larangan untuk mencari makan. Ikan-ikan inilah yang sebagian tertangkap oleh masyarakat. Umumnya, wilayah sungai di sekitar lubuk larangan justru memiliki banyak ikan" (Jagapati Bumi, pg. 23).

"Di antara hal yang meresahkan para ikan itu adalah penangkapan ikan secara berlebihan. Perilaku ini akan membuat populasi ikan merosot. Lubuk larangan dipandang efektif untuk menghentikannya. Bila populasi ikan terjaga, terjaga pula lumbung pangan warga. Masyarakat jadi menyadari bahwa batasan dan pantangan di lubuk larangan tak lain demi kepentingan bersama" (Jagapati Bumi, pg. 23).

The *lubuk larangan* tradition reflects the community's capacity for self-restraint and its respect for the ecological limits of nature as a means of preserving river ecosystems. This attitude represents a concrete expression of balancing human needs with environmental sustainability. Such a principle lies at the core of ecological balance, emphasizing a harmonious and reciprocal relationship between humans and nature. By maintaining this balance, both humans and the natural environment are able to coexist in a sustainable and mutually beneficial manner over the long term.

3.1.2. Value of Preservation and Sustainability

In addition to the value of ecological balance in the myths of the forbidden depths, values of conservation and sustainability are also found. One example is the myth of the "Drum of Death" in Sulawesi. The people living in the area around Mount Gandang Dewata believe in always preserving the mountain's integrity. Whoever damages the mountain's integrity will hear the drum of death, and that person will suffer misfortune.

"Suara gendang yang terdengar dari arah gunung diyakini oleh masyarakat sekitar sebagai peringatan dari para dewa. Siapa pun yang merusak dan mengotori hutan, apalagi melukai atau membunuh binatang di dalamnya, akan tertimpa bencana" (Jagapati Bumi, pg. 40)."

The excerpt above indicates that the beliefs upheld by the Gunung Dewata community play an important role in promoting the sustainable protection and preservation of the natural environment. This myth conveys the moral lesson that humans should avoid greed and excessive exploitation of nature. Although humans occupy a privileged position among living beings, they are expected to exercise restraint and manage natural resources responsibly. In addition to the belief associated with the *Gendang Kematian* myth, the people of Kampung Naga also uphold the belief that maintaining a positive and reciprocal relationship with nature is essential for ensuring the long-term well-being and sustainability of both humans and the natural environment.

"Masyarakat Kampung Naga percaya jika mereka menjaga alam, alam pun memberikan penjagaan terbaik. Mereka patuh pada petuah leluhur untuk hidup bersama alam, bukan sekadar memanfaatkan alam. ... Ada kasih sayang dan pesan kebaikan kepada manusia untuk menjaga alam agar terlindungi hingga nanti. Hal itulah yang membuat kesabajaan Kampung Naga bertahan hingga kini" (Jagapati Bumi, 2023:67).

These myths convey the message that natural resources must be utilized wisely and without excess. This value is reflected in customary rules, rituals, and various taboos designed to ensure resource sustainability such as the belief that damaging the integrity of a mountain can bring about disaster, as explained by Sastrapradja (2002).

3.1.3. Environmental Ethics and Responsibility

The Jagapati Bumi myth embodies ethical values and a sense of environmental responsibility essential for preserving the natural world. The community steadfastly upholds this belief as a means of protecting nature. According to the myth, violating these prohibitions affects not only the individual transgressor but also the entire village and the surrounding environment; for instance, the Asmat people believe in the spirits of supernatural beings and ancestors who constantly safeguard the nature of Papua.

"Keluarga suku Asmat dan suku-suku lain di Papua menggantungkan hidup kepada hasil hutan—buah, dedaunan, dan satwa. Meski begitu, bagi mereka kehati-hatian dalam bersikap dan kesantunan terhadap alam adalah hal utama. Mereka sepenuhnya yakin bahwa arwah nenek moyang selalu mengawasi tingkah laku mereka ketika memanfaatkan hasil alam" (Jagapati Bumi, 2023: 51).

In relation to the excerpt above, the Asmat indigenous community in Papua demonstrates strong environmental ethics and responsibility in protecting nature. This attitude has been inherited and transmitted across generations. The community believes that if the Asmat people act irresponsibly toward nature, negative consequences will occur. They believe that the *Dewata* (divine beings), ancestral spirits, and supernatural entities that govern the natural world of Papua observe those who harm the environment.

This belief demonstrates that the relationship between humans and nature is not merely based on resource utilization but also involves a moral obligation to maintain ecological balance and environmental sustainability. In other indigenous practices in Papua, such as the *Egek* tradition of the Moi people, environmental responsibility is manifested through the principle of taking natural resources only as needed and allowing nature sufficient time to recover and regenerate (Indonesia.go.id, 2023; Zulfikar, 2024). This perspective aligns with Sodikin (2018), who argues that environmental ethics within indigenous communities are shaped by ancestral values that serve as guidelines for maintaining a harmonious relationship between humans and nature. Therefore, the belief in ancestral spirits and supernatural beings within the Asmat community can be understood as part of a cultural value system that cultivates moral responsibility to protect and preserve the natural environment.

3.1.4. Spiritual Value and the Sacredness of Nature



In the *Jagapati Bumi* myth, nature and all of its components are perceived as sacred entities possessing spiritual values. The community believes that nature is protected by ancestral spirits and supernatural beings. This belief shapes human attitudes by encouraging respect, reverence, and responsible care toward the natural environment. One example is the belief in the existence of supernatural beings associated with sacred trees in certain regions of Kalimantan.

"Dialah beringin, pohon berkayu keras, tumbuh di berbagai wilayah Indonesia. Selain menjadi penerang, pohon ini memiliki makna sakral. Sejak dahulu, beringin dianggap masyarakat sebagai pohon keramat. Mitos tentang makhluk gaib yang tinggal di pohon-pohon besar lazim dijumpai di Indonesia, salah satunya di Kalimantan. Ada mitos yang beredar di Kalimantan bahwa pohon-pohon besar seperti beringin ini menjadi tempat tinggal kuyang si makhluk gaib" (Jagapati Bumi, 2023:28).

"Kuyang tak suka jika rumahnya diganggu. Orang-orang yakin, membuang sampah di sekitar beringin dapat mengakibatkan kesialan. Orang yang merusak pohon dipercaya akan jatuh sakit, sulit mendapatkan rezeki, tak kunjung mendapat jodoh, atau mengalami mimpi buruk berkepanjangan. Menebang beringin secara sembarangan juga diyakini dapat mengundang bencana seperti kecelakaan hingga kematian" (Jagapati Bumi, 2023:29).

This belief contributes to the conservation of banyan trees (*Ficus* spp.), which provide numerous ecological benefits to the surrounding environment. Banyan trees serve as important habitats for a wide variety of species, including insects, flying geckos, slow lorises, green pigeons (*Punai*), and many other bird species. In addition to providing shelter for wildlife, banyan trees play a vital role in maintaining local water resources and supporting ecosystem stability. The belief that these trees are protected by supernatural beings discourages community members from cutting down or disturbing them. As a result, such cultural beliefs play an important role in preserving banyan trees and the ecosystems they support.

More broadly, beliefs in supernatural beings or guardian spirits associated with particular natural sites can function as social mechanisms that regulate human interactions with the environment. Because people tend to avoid actions perceived as disrupting both spiritual and ecological balance, these beliefs help limit environmentally destructive behaviors. Studies on *sacred natural sites* have shown that places regarded as sacred often serve as informal conservation areas, where taboos, customary prohibitions, and collective reverence for supernatural guardians contribute to the protection of biodiversity and ecosystem integrity. A similar pattern can be observed among indigenous communities in Indonesia, where rivers, forests, or other natural areas believed to be inhabited by guardian spirits or deities are often preserved because local people refrain from exploiting or disturbing them indiscriminately.

3.1.5. *Value of Local Wisdom*

The *Jagapati Bumi* myth represents a form of local wisdom that effectively guides community attitudes and behaviors to ensure they remain in harmony with nature. This local wisdom plays a highly effective role in environmental conservation exemplified by the **pamali** (traditional taboo) system in Kampung Nagadi, Tasikmalaya Regency, West Java Province.

"Di atas bukit, di bagian Barat Kampung Naga, bertakhta sebuah hutan larangan. Apa pun tak pernah diambil dari sana, bahkan daun dan ranting jatuh tak dipungut. Tak pernah pula ada kisah seram tentang makhluk gaib atau binatang buas yang mengancam nyawa. Hanya satu kata untuk membuat warga patuh dan menjauh: Pamali?" (Jagapati Bumi, 2023:59).

pamali! "Pamali digunakan oleh masyarakat sebagai pengendalian perusakan lingkungan. Pamali terbukti efektif" (Jagapati Bumi, 2023:68).

Based on the excerpt above, the people of Kampung Naga believe that the local wisdom value of *pamali* serves as a guiding principle for managing and protecting the forbidden forest (*hutan larangan*). *Pamali* represents the community's traditional belief in prohibitions and taboos against damaging the forest, which have been inherited across generations and are

regarded as essential guidelines for daily life. From an environmental perspective, *pemali* functions as a social mechanism that regulates and controls human attitudes and behaviors toward natural resource exploitation, particularly excessive exploitation of forest ecosystems. The community believes that actions such as indiscriminate tree cutting, water pollution, overharvesting of forest resources, or harming animals will result in negative consequences. Although these regulations are not formally written, they are respected and followed as a form of collective awareness and shared values within the Kampung Naga community.

This local wisdom is effective in controlling forest degradation and has the potential to preserve and maintain the sustainability and balance of nature in the long term. Such local wisdom emerges from the long-standing experiences of communities in interacting with their environment, making these practices highly relevant and contextual to the needs of local environmental conservation.

3.1.6. Biodiversity Value

The Jagapati Bumi myth provides insights, understanding, and experiences that demonstrate how myths developed in Indonesia play an important role in conserving biodiversity. Indonesia is rich in natural heritage that must be carefully protected and preserved. Myths educate communities to remain wise in utilizing natural resources. They contain prohibitions against catching fish, destroying forests, mountains, and trees, as well as guidance on how to utilize and conserve nature responsibly. Nature serves as a habitat for various species of flora and fauna. As explained in the discussion of sacred trees, the banyan tree is home to various types of insects, flying lizards, birds, and slow lorises. The banyan tree also functions as a guardian of water resources. In addition to the banyan tree, the community's belief in the Gendang Kematian tradition among the people of Sulawesi also contributes to the conservation of biodiversity in the Moss Forest.

"Hutan lumut di Taman Nasional Gunung Gandang Dewata bagaikan laboratorium alam dengan ratusan flora dan fauna yang belum teridentifikasi" (Jagapati Bumi, 2023:43).

"Sebelum ditetapkan sebagai taman nasional, masyarakat telah bermukim dan berlindung di kawasan Gunung Gandang Dewata. Kekayaan hayati gunung ini menghidupi warga tanpa jeda. Rupanya, cinta itu tak bertepuk sebelah tangan. Masyarakat pun membalas kebaikan alam dengan kesantunan" (Jagapati Bumi, 2023:46).

The quotation demonstrates that nature, particularly forests, serves as a living space that preserves biodiversity and supports human life. Forests not only provide natural resources but also play an important role in maintaining ecosystem balance, protecting flora and fauna, and supporting environmental sustainability. Therefore, human awareness in preserving nature is essential to ensure that resource utilization does not transform into destructive exploitation.

3.2. The Application of the Jagapati Bumi Myth in "Love the Earth" Lessons

The incorporation of the values found in the myth of Jagapati Bumi into learning the Indonesian language with the theme "Love the Earth" among elementary school students in the fifth grade is very appropriate and relevant. The teachers can create student-centered learning activities and relate them to the ecological values within the Jagapati Bumi myth. In this way, the students will learn the significance of taking care of the Earth in an engaging manner.

Based on the result of the observation in SD N 1 Banyuasri, the ecological values found in the Jagapati Bumi myth have been implemented by the teachers. The learning objectives that need to be achieved are that the students will understand the significance of protecting the Earth through the Jagapati Bumi myth; the students will be able to determine the concrete actions in conserving the environment; and the students will develop caring and responsible attitudes toward the environment.

The learning objectives mentioned above are accomplished by means of implementing a local culture-based STEAM (Science, Technology, Engineering, Art, Mathematics) approach. The methods implemented include telling a story, discussion in groups, conducting simple experiments, and carrying out creative projects. The activities were done in two sessions of learning.

For the first session, the activity started with the preparation and conditioning of the students by the teacher to be ready to learn. Apperception was conducted by asking the students the question "Have you cleaned your bedroom before coming to school?" The students responded differently to this question. They said that they had made their beds and swept the floor. After that, the activity continued with the following question "What would be the impact on the Earth if we do not preserve our environment?" Again, the students gave different answers to this question. Most of them said that the Earth would get dirty, but some of them said that the Earth would cry.

This apperception activity was able to stimulate students' interest in the learning material that would be presented. The next activity was the teacher's introduction of the Jagapati Bumi myth. The teacher briefly explained the figure of Jagapati as a guardian of the Earth who always feels sad when humans damage nature and feels happy when humans protect the Earth. The following is a photograph of the activity when the teacher was telling the story of the Jagapati Bumi is show in **Figure 2**.



Fig 2. Teacher's Activity: Explaining the Figure of Jagapati Bumi

After completing this activity, students are asked to view an animated video related to the Jagapati Bumi myth (<https://www.youtube.com/watch?v=kgbWvW5K-es>). Students viewed this video very enthusiastically. This educational video of 2 minutes and 11 seconds discussed the impact of damaging, exploiting, and neglecting the Earth and the way of ensuring its sustainability. The use of animated video in the lesson was proven to be very useful in terms of improving student engagement and understanding of environmental issues. After viewing this video, the teacher held a discussion with the students regarding the messages from this video. Gambar 4 photos of the activity when the video is being screened.

After viewing the video, the teacher then tells one of the stories from the Jagapati Bumi myth called Lubuk Larangan. Students are provided with the text of the myth called Lubuk Larangan so that they can see the animations contained in the text. Students are very enthusiastic about listening to the story from the teacher. In addition, students are very happy with the animations contained in the text. The following is the storytelling activity of the teacher. After the storytelling activity, students and the teacher discussed the ecological

messages contained in the myth text. After the discussion, the teacher asked some questions related to the content of the myth text. The next activity is reflection and conclusion.

In the second meeting, simple experiments and creative projects are implemented. First, the teacher prepares the students to learn. The teacher gives apperception. The teacher explains the flooding in Denpasar. The teacher asks the students the cause of this flood. Students answer this question very enthusiastically, most of whom said that the cause was because of the garbage thrown into the river. After the apperception is done, the simple experiment is conducted. The teacher shows two images of plants in a pot. One image shows a thriving plant with lots of fruits. The other image shows a wilting plant that almost dies. The teacher tells the students to observe the images very carefully. Students discuss the difference in condition of the plants, the causes and the solutions to make the wilting plants thrive. After discussing, students share the result of their discussion. The result of the discussion of the students is almost the same. The plants thrive because of the diligence in watering them and the causes of the wilting plants is never being watered. The solution suggested by the students is to water and fertilize the plants diligently so that they thrive. This simple experiment helps students understand how to maintain the environment.

After the simple experiment, students are assigned to create a poster related to their pledge to save the earth. This activity is conducted in groups where the students complete the task very enthusiastically. Cooperative poster making activities can improve students' creativity and environmental understanding. This is supported by research stating that the use of project-based learning models is effective in increasing students' environmental literacy and awareness. Figure 3 shows the group poster making activities of the students.



Fig 3. Group Poster Making Activities

After creating posters, students were assigned to present their posters. They did so with enthusiasm and passion. Following the presentations, the teacher provided feedback. In the closing activity, the teacher administers a post-test. After the post-test, the students and the teacher conclude the learning activities. The teacher reflects on the learning. The teacher also provides motivation to ensure students maintain a clean environment and maintain enthusiasm for learning. The teacher explains the learning activities for the next meeting. The lesson closes with a prayer.

3.3. The Effectiveness of Applying Ecological Values in the Indonesian

After implementing the ecological values in the Jagapati Bumi myth using the STEAM approach, this study then measured the effectiveness of applying ecological values contained in Nusantara myths, specifically the "Jagapati Bumi" myth, in improving students' understanding of how to care for the earth. The method used was a pretest and posttest with

fifth-grade students at SD N 1 Banyuasri. The sample size was 79 students. In the initial meeting, students were given a pretest on their understanding of how to care for the earth. In the second meeting, students were taught the myth entitled "Jagapati Bumi," which contains ecological values. A posttest was then conducted to assess changes in students' understanding of how to care for the earth. The effectiveness test was conducted using an experiment with a one-group pretest-posttest design. **Figure 4** show a diagram of the pretest and posttest analysis.

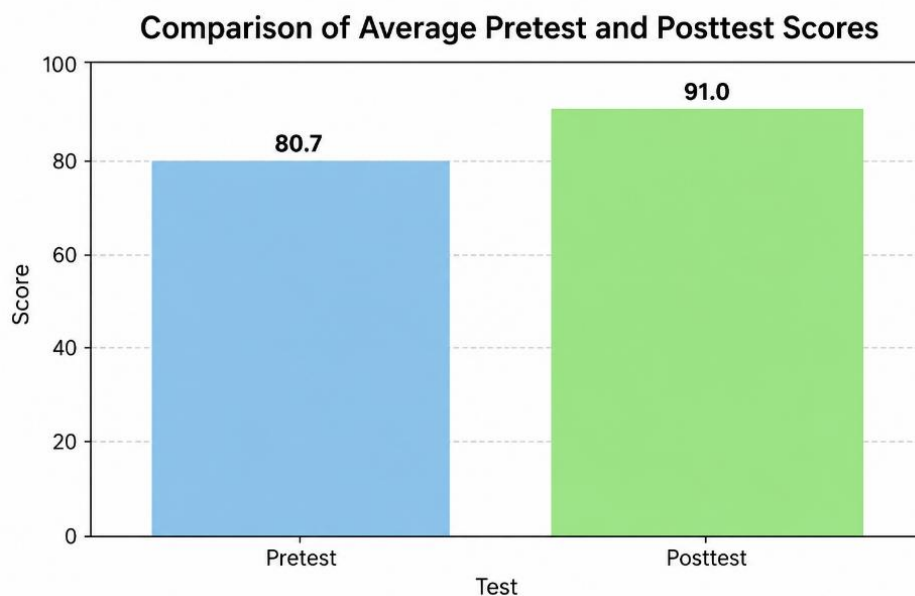


Figure 4. Comparison of Pretest and Posttest Averages

A non-parametric difference test using the Wilcoxon Signed Rank Test was conducted because the prerequisite test results showed that the pretest and posttest data did not meet the assumption of normal distribution and had non-homogeneous variance. Based on the analysis results, the Wilcoxon statistical value was obtained at 336.5 with a p-value of 0.0000000312 ($p < 0.05$). These results indicate that there is a significant difference between the pretest and posttest scores. Thus, it can be concluded that there is a significant change after being given treatment, so the hypothesis stating that there is a difference between the pretest and posttest scores is accepted.

The test results showed a Wilcoxon statistical value of 336.5 with a p-value of 0.0000000312 (far below 0.05). This indicates a highly significant difference between the pretest and posttest scores. In other words, the intervention or treatment provided in the learning process proved effective in improving student understanding. These results reinforce previous findings that the implemented program had a significant positive impact on improving students' understanding of how to care for the earth.

The effect size (r) value obtained from the Wilcoxon Signed Rank Test is 0.61. Based on the effect size interpretation criteria, this value is included in the large category. **Figure 5** show diagram of the Wilcoxon Signed Rank Test effect size.

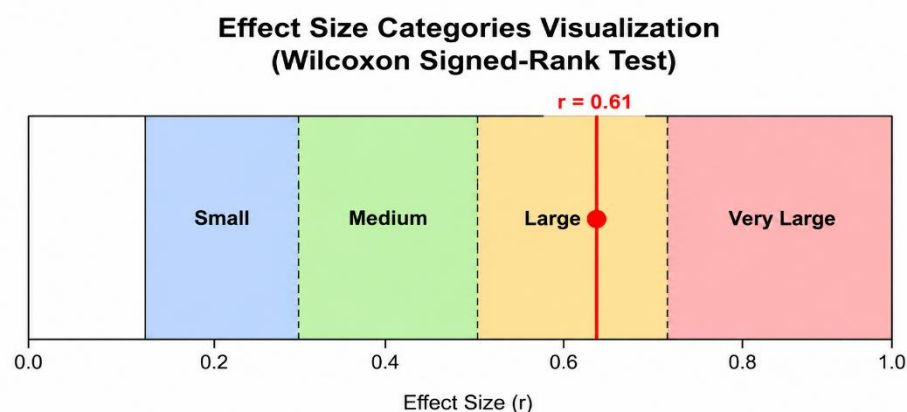


Figure 5. Effect Size Value of Wilcoxon Signed Rank Test

his indicates that the intervention or treatment provided in the learning process not only produced statistically significant differences but also had a strong and practically meaningful impact on improving student understanding. With this large effect size, it can be concluded that the implemented learning program was truly effective in improving students' understanding of how to care for the earth. The resulting effects are not only visible in numbers but also meaningful in the context of student education and development.

The results of the study showed a significant increase in students' understanding after implementing the "*Jagapati Bumi*" myth-based learning. This finding was proven through statistical analysis using the Wilcoxon Signed Rank Test, which showed a significant difference between the pretest and posttest scores ($p < 0.05$). Thus, the application of ecological values contained in the Nusantara myth has proven effective in improving students' understanding of the importance of protecting, preserving, and caring for the earth as part of human life.

The increase in average scores from pretest to posttest indicates that students experienced a significant change in understanding after participating in the learning process. Before the treatment, most students still had a limited understanding of the relationship between humans and the environment and the importance of behavior that preserves nature (Subramanian & Suresh, 2023; Valzolphier et al., 2024). After the myth-based learning was implemented, students showed an increase in their ability to understand ecological concepts, such as the importance of maintaining the balance of nature, human responsibility towards the environment, and the negative impacts of excessive exploitation of nature (Subramanian & Suresh, 2023; Valzolphier et al., 2024). This improvement indicates that delivering material through stories rich in cultural meaning can help students build a deeper understanding compared to conventional delivery.

The results of this study align with the theory of contextual teaching and learning, which states that the learning process will be more meaningful if students are able to connect learning materials to real-life contexts and their socio-cultural environment (Elshami et al., 2021; Manochkumar et al., 2026). The myth of "*Jagapati Bumi*," as part of the Indonesian cultural heritage, presents a context close to students' lives, making the ecological values conveyed easier to understand, remember, and interpret. The story, which contains a moral message about the harmonious relationship between humans and nature, encourages students to not only memorize environmental concepts but also understand the reasons why nature needs to be preserved (Wang et al., 2021; Widiyatmoko et al., 2022). Thus, myth-based learning acts as a medium that bridges scientific knowledge with local cultural values.

In addition to enhancing cognitive aspects, myth-based learning also has the potential to develop students' affective aspects. Folktales possess narrative power that can evoke empathy, imagination, and emotional attachment to the characters and messages they convey

(Ade-Ojo et al., 2022; Borch, 2019). When students understand that environmental damage depicted in myths is the result of irresponsible human behavior, they are encouraged to reflect on their daily behavior towards the environment. The process of internalizing values through this kind of storytelling makes learning oriented not only toward gaining knowledge but also toward developing environmentally conscious character (Aslam et al., 2018; Farozin et al., 2020).

The findings of this study also support the research which stated that local wisdom-based environmental education can improve understanding and attitudes toward environmental care because the material presented is closely related to students' daily experiences and lives (Septiani et al., 2020). This close context makes it easier for students to connect environmental concepts with the realities they encounter, making learning more meaningful and retaining. Furthermore, the results of this study are consistent with various previous studies showing that the integration of local values and cultural wisdom in learning can increase the effectiveness of environmental education. Other study explained that utilizing local culture as a learning resource can strengthen students' understanding of environmental issues while instilling a sense of ownership of the surrounding environment (Elan & Solihati, 2022). Other research also showed that local wisdom-based learning can improve environmental literacy because students learn through cultural experiences they are already familiar with (Leksono et al., 2020). Similarly, other study found that the integration of folklore and ecological values in learning contributes to increasing environmental knowledge and developing character oriented towards nature conservation (Van et al., 2021).

The effectiveness of the myth-based learning "*Jagapati Bumi*" in this study shows that Nusantara myths not only function as cultural heritage, but also have the potential as educational media relevant to the challenges of 21st-century education, particularly in building students' ecological awareness (Al-Gindy et al., 2020; Jang et al., 2021). The use of myths as a learning medium provides an innovative alternative because it is able to integrate aspects of culture, character, and scientific knowledge simultaneously. This approach is becoming increasingly important amidst various global environmental issues that require educational efforts from an early age so that students have an understanding, concern, and responsibility for environmental sustainability.

Overall, the results of this study indicate that local myth-based learning interventions have a positive impact, both statistically and practically. The increase in students' understanding demonstrated through post-test results proves that the "*Jagapati Bumi*" myth can be an effective learning medium for internalizing ecological values. Therefore, learning based on Nusantara myths is worthy of consideration as an innovative contextual learning strategy to support environmental education while strengthening the preservation of local culture. The integration of culture and environmental education through this type of learning is expected to shape a generation that not only possesses sound ecological knowledge but also possesses environmentally conscious character reflected in their daily behavior.

4. Conclusion

Indonesia has a variety of myths that can be well preserved to protect nature. The *Jagapati Bumi* myth discusses various myths that have developed in Indonesia related to how local wisdom can be a means of preserving nature. The *Jagapati Bumi* myth contains many ecological values that are very good to be taught to students. These ecological values are the value of ecological balance, the value of preservation and sustainability, the value of ethics and environmental responsibility, the spiritual value and sacredness of nature, the value of local wisdom, and the value of biodiversity. The application of the ecological values of the *Jagapati Bumi* myth can be integrated with the STEAM (Science, Technology, Engineering, Art, Mathematics) approach based on local culture. The syntax is, namely 1) watching an animated video related to the *Jagapati Bumi* myth (technology); 2) storytelling one of the stories in the *Jagapati Bumi* myth entitled *Lubuk Larangan*; 3) discussion of the ecological values contained in the myth text; 4) a simple experiment in the form of observing two photos

of plants with different conditions (science and mathematics); 5) making a creative project (art and engineering). The application of ecological values in the Jagapati Bumi myth effectively improves the understanding of how to care for the earth among fifth-grade students at SD N 1 Banyuasri. This is seen from the difference test with the non-parametric Wilcoxon Signed Rank Test of 336.5 with a p-value of 0.0000000312 (far below 0.05). This means there is a very significant difference between the pretest and posttest scores. In other words, the intervention or treatment provided in the learning process has proven effective in improving students' understanding.

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