

Formation of Environmentally Caring Character Based on Qur'anic Ecology for MI Children

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Abstract

Increasing environmental damage due to irresponsible human behavior requires Islamic education to re-emphasize the role of humans as *khalifah fil ardh* (prosperer of the earth). This research departs from the urgency of integrating ecological values in Islamic Religious Education learning at Madrasah Ibtidaiyah (MI). The purpose of this research is to analyze the ecological meaning in QS. Al-Baqarah: 30 and QS. Ar-Rum: 41 and implement it in the formation of students' environmental care character through waste sorting and recycling activities in collaboration with the Pekalongan City Waste Bank. The research method used is qualitative with a thematic interpretation approach (*maudhu'i*) and field studies. Data were obtained through observation, teacher and student interviews, and activity documentation. The results of the study indicate that the values of the *khalifah* in QS. Al-Baqarah: 30 emphasize human responsibility in maintaining the balance of nature, while QS. Ar-Rum: 41 describes the destructive consequences of such negligence. Integrating this understanding through concrete waste management activities fosters students' ecological character traits such as responsibility, discipline, and environmental awareness. In conclusion, reflection on ecological verses from the Quran can serve as a spiritual and ethical foundation for developing Islamic ecopedagogy in elementary education institutions.

Keywords: ecological interpretation, character education, environmental care, *khalifah fil ardh*, damage to the earth.

Introduction

Islamic education is not only oriented towards developing the intellectual aspects of students, but also has a spiritual and moral mandate to foster ecological awareness as a manifestation of the practice of the teachings of monotheism and the mandate of the caliphate of humanity on earth. In this context, humans are seen not merely as rational beings, but also as guardians of the balance of nature who are responsible for the preservation of Allah's creation (Suhada, 2017). Unfortunately, global environmental crises such as climate change, pollution, and exploitation of natural resources have also impacted local conditions, including in the Pekalongan area which faces classic problems such as piles of household waste, declining water quality, and seasonal flooding. This phenomenon not only reflects a weak environmental management system, but also a crisis of ecological awareness among the community, including the younger generation.

A strategic role in fostering sustainable awareness and behavior in early childhood can be achieved through education. Ecological values can be systematically instilled, so that students

not only understand environmental issues conceptually but are also able to take concrete actions to maintain the sustainability of nature. Education for sustainable development emphasizes the integration of ecological knowledge, attitudes, and skills into all aspects of school life (Vioreza et al., 2023). Within the framework of Islamic education, this approach aligns with the value of *rahmatan lil 'alamin* (blessing for the universe), which emphasizes that human existence must benefit all creation. Therefore, Islamic schools have a moral responsibility to internalize sustainability values through learning activities (Rosida et al., 2024), fostering green behavior, and collaborating with environmental institutions in the community.

Qur'anic values that emphasize balance, responsibility, and environmental concern. However, studies and observations indicate a gap in environmental education practices in Islamic schools (Hasanah et al., 2022). Although the Adiwiyata program has been widely adopted by madrasas and elementary schools, its implementation tends to focus on external and administrative aspects of behavior, without addressing the theological dimension derived from the Qur'an and Hadith. In fact, the integration of spiritual values in environmental education is crucial for developing an environmentally conscious character rooted in an awareness of faith and the responsibility of humanity's caliphate towards the universe (Mumtazah et al., 2025).

Previous research such as Sehlawi (2020), Santika et al., (2022) and Amalia (2024) discusses environmental education from an Islamic perspective, but does not yet emphasize direct reflection on ecological verses and their implementation in concrete activities at MI. Therefore, this study attempts to fill this gap by linking the interpretation of QS. Al-Baqarah: 30 and QS. Ar-Rum: 41 with waste management practices at MI Salafiyah Simbang Kulon 02 in collaboration with the Pekalongan City Waste Bank.

The focus of this research is how reflections on verses about the caliph and the destruction of the earth can be implemented in the formation of environmental character of MI students through waste management activities (Nur Hasanah & Kristiyah, 2023). This problem stems from the need to find an educational model that is able to integrate the ecological values of the Qur'an into the learning practices and real activities of students. In line with that, the purpose of this research is to describe the ecological values contained in QS. Al-Baqarah: 30 and QS. Ar-Rum: 41 and analyze how the application of these values can be realized in the formation of environmental character through the activities of sorting and recycling waste in the school environment. Through this approach, it is hoped that a spiritual-based ecological awareness will be built that not only teaches physical cleanliness, but also instills moral and religious responsibility for the preservation of the earth.

Methods

Research Design

This study uses a descriptive qualitative approach, because the main objective is to understand in depth the phenomenon of the formation of students' environmental care character through reflection of the verses of the Qur'an in the context of real life at school. The qualitative approach was chosen to explore the meaning, values, and processes that occur naturally, not to measure quantitative relationships between variables. With this approach, the researcher attempts to interpret and describe how the ecological values contained in the verses of the Qur'an can be internalized in the behavior and habits of MI Salafiyah Simbang Kulon 02 Pekalongan students through waste management activities.

Participants

Participants in this study were students at MI Salafiyah Simbang Kulon 02 Pekalongan, who served as the primary subjects in the process of developing environmentally conscious

character. Students were selected because this study focuses on how the ecological values contained in the verses of the Quran are internalized in their behavior, particularly through waste management activities at school.

In addition to students, this study also involved teachers or educators who facilitated reflection activities on Quranic verses and environmental awareness, as supporting informants. The presence of teachers was necessary to explain the learning process, the reflection methods used, and the character development strategies implemented at the school.

The research object in this context encompasses the process of internalizing environmental values, as evident through students' habits in waste management and other concrete practices in daily school life. The school environment, cleanliness programs, and the environmental awareness culture implemented at MI Salafiyah Simbang Kulon 02 Pekalongan also formed part of the situational objects observed.

Research Procedures

The type of research used is thematic interpretation analysis (*maudhu'i*) and field studies that complement each other. Thematic interpretation analysis was conducted to trace and examine the ecological meaning in QS. Al-Baqarah: 30 and QS. Ar-Rum: 41. This approach not only examines the text of the verses linguistically and the context of *the asbabun nuzul* (prophetic revelation), but also interpreting moral and spiritual values relevant to the concept of environmental education. Meanwhile, a field study was conducted at MI Salafiyah Simbang Kulon 02 Pekalongan to directly observe the implementation of these values in students' real-life activities, particularly in the waste sorting and recycling program in collaboration with the Pekalongan City Waste Bank.

Data Collection Techniques

Data collection techniques include in-depth interviews, participant observation, and documentation. Interviews were conducted with Islamic Religious Education teachers, UP, UKS (School Health Unit) supervisors, and student representatives to obtain their views and experiences related to environmental education based on Qur'anic values. Observations were conducted to observe student involvement in waste management activities, while documentation was used to collect data in the form of activity photos, collaboration reports, and school program notes.

Data Analysis Technique

Data analysis was carried out interactively through three stages using the Miles and Huberman interactive analysis model (Sugiyono, 2022): data reduction (selecting and grouping important information), data presentation (describing the results in the form of thematic narratives), and drawing conclusions (constructing the meaning of the findings according to the research focus). To maintain data validity, source and method triangulation techniques were used, namely comparing data from various informants and collection techniques to obtain credible and scientifically accountable results.

Results

Analysis of QS Interpretation. Al-Baqarah: 30 – Concept of the Caliph as Manager of Nature

In the interpretation of Al- Mishbah volume 1, it is explained that Surah Al-Baqarah verse 30 is Allah's announcement to the angels about the creation of Adam as a caliph on earth. The fundamental concept of the role of humans as *khalifah fil ardh* or God's representative on earth

in this verse not only refers to the position of human honor, but also the great mandate to prosper and maintain the balance of the universe. The meaning of *caliph* according to M. Quraish Shihab (2005) is the responsibility to preserve and guide all of God's creation towards its purpose. From a theological perspective, humans do not have absolute rights over nature, but are given a moral responsibility to manage, preserve, and prevent damage (Yuono, 2019). This verse also serves as a spiritual foundation for the formation of ecological awareness, that all forms of exploitation and indifference to the environment are a form of betrayal of the mandate of the caliphate (Akbar, 2023).

In the context of Islamic education, the meaning of the caliphate can be translated into a systematic effort to instill the values of responsibility, care, and balance in students. These values need to be internalized from an early age through a learning process that focuses not only on cognitive aspects but also on affective and psychomotor aspects. Teachers act as role models and facilitators, fostering awareness that maintaining a clean environment, conserving energy, and treating nature with respect are all part of worship. (Dwijaya & Rigianti, 2024). Thus, the concept of caliph does not stop at theoretical understanding, but is manifested in students' daily concrete behavior in the school and home environments.

Implementing the values of the caliphate in school life can be done through various positive habit-building activities. For example, students are accustomed to disposing of trash properly, sorting organic and inorganic waste, and participating in recycling and school greening programs. Through these activities, they learn that every small action makes a significant contribution to environmental sustainability (Handiyati et al., 2023). Education based on the meaning of this verse will shape a generation that is not only intellectually intelligent but also has ecological morals, a generation that realizes that preserving the earth is part of the mandate of faith and a tangible manifestation of devotion to Allah SWT.

Analysis of QS. Ar-Rum: 41 – Damage to the Earth due to Human Actions

Humans, as caliphs on earth, sometimes neglect to maintain the balance of nature, resulting in ecological and social damage such as natural disasters and economic problems. The meaning of QS. Ar-Rum: 41 emphasizes that damage on land and at sea is the result of human actions. This verse is a form of divine warning so that humans are aware of the consequences of exploitative behavior towards nature (Shihab, 2005). Allah allows humans to feel some of the consequences of their actions to awaken them and make them repent and return to the right path. Greed, excessive consumption, and neglect of the balance of the ecosystem have caused various ecological disasters such as floods, pollution, and climate change (Nasr, 2009). In a spiritual context, this verse reminds us that nature is not just an economic resource, but a trust and a sign of Allah's power that must be maintained with full responsibility. Thus, humans need to introspect on behavior that damages the earth and commit to repairing it as part of ecological repentance.

The warning contained in this verse can also serve as an ethical foundation in Islamic education, particularly at the Madrasah Ibtidaiyah (MI) level, where children begin to develop their moral foundations and character. Understanding this verse should not only be taught as cognitive material in Islamic Religious Education lessons but should also be embedded in students' daily practices and experiences. Teachers play a crucial role in instilling awareness that littering, wasting energy, or damaging plants are violations of God's mandate (Santika et al., 2022). In this way, education at MI becomes a means of instilling holistic monotheistic

values that connect faith, knowledge, and good deeds within the context of environmental conservation.

Furthermore, QS. Ar-Rum: 41 can serve as a basis for moral reflection to foster social responsibility and ecological awareness in students. Teachers can guide students to understand that every human action has consequences, and that maintaining cleanliness and treating nature well are part of commendable morals. This reflection can be carried out through contextual learning activities such as discussions, cleanliness projects, or reading simple interpretations tailored to the students' age (Santi, 2022). In this way, the values of the Quran are not only understood textually but also internalized in real attitudes and habits.

The implementation of the values of QS. Ar-Rum: 41 in school life can be realized through solution-oriented activities such as sorting and recycling waste, planting trees, and maintaining the cleanliness of the classroom environment and the madrasah yard. At MI Salafiyah Simbang Kulon 02 Pekalongan, these activities are carried out in a structured manner in collaboration with the Pekalongan City Waste Bank. Through this program, students learn to change destructive behavior into productive actions that benefit the environment and society (Herawati et al., 2024). This process also instills an awareness that repairing damage to the earth is not only the responsibility of the government or environmental activists, but also part of worship and a tangible form of obedience to Allah SWT.

Implementation of Ecological Values through Collaboration with Waste Banks

Waste management activities at MI Salafiyah Simbang Kulon 02 begin with the most basic yet crucial step: sorting at the source. Each classroom is equipped with trash bins labeled organic and inorganic. At the beginning of the school year, students are given socialization on how to sort what is organic (food scraps, leaves), inorganic (plastic, glass, metal), and what must be taken home (small hazardous waste).



Figure 1 The Process of Sorting Waste According to Type

Children are regularly reminded of their responsibility to always maintain the cleanliness of the madrasah environment through waste sorting. This habit is carried out through daily routines, every morning after morning prayer together before the start of classes there is a 5-minute "sweep-garbage & sort" led by the class duty officer. This technique trains diligence and attention to detail while teaching personal responsibility. Each student understands that sorting is their contribution to collective cleanliness and environmental sustainability.

The next stage is the recycling process, which adds a creative and practical nuance to learning. Appropriate inorganic waste such as plastic bottles and used paper is collected in the

class bank, re-sorted, and some is processed into simple products such as plant pots from used bottles, paper crafts as teaching materials for art and entrepreneurship. For organic waste, the school implements a school-scale composting in the corner of the madrasah garden, this compost is used for the school's greening program. These hands-on activities strengthen students' cognitive understanding of the material cycle while providing psychomotor experiences that foster a sense of pride in seeing the tangible results of "transformed" waste.

The waste savings component, implemented through a collaboration with the Pekalongan City Waste Bank, adds an economic-pedagogical dimension that strengthens student motivation. Collected waste is weighed monthly, and the results are exchanged for savings balances per class or per student in the Waste Bank account. This scheme teaches basic financial literacy, values, saving, and collective benefit, and demonstrates the direct link between environmentally conscious behavior and socio-economic benefits (Herawati et al., 2024). For schools, a portion of the sales proceeds can be used for environmental learning needs or as program operational funds, enabling the program to become financially self-sufficient.



Figure 2 weighing and recording process for waste banks

Formal collaboration with the Pekalongan City Waste Bank strengthens program governance and sustainability. The waste bank's role includes technical training (proper sorting techniques, accepted material hygiene standards), scheduled pick-ups, weight recording, and conversion into balances or cash. At the school level, supervising teachers, school committees, and duty teams are responsible for operational coordination: collection, recording, participant data collection, and ongoing education. This external involvement also creates opportunities for civic practice: students see how public/community infrastructure works and can engage in broader social networks.

From a pedagogical perspective, this series of activities constitutes ecopedagogy: a learning experience that combines knowledge (why waste has an impact), values (obligations as a caliph), and actions (sorting and recycling). Teachers facilitate regular reflections, such as weekly sharing sessions, so that students can connect their practical actions to the teachings of Surah Al-Baqarah: 30 and Surah Ar-Rum: 41, thus deepening the internalization of values. Assessment is not only through behavioral observation, but also through portfolios (photos of recycling projects), waste savings reports, and attitude assessments that record consistency, initiative, and cooperation.

To ensure sustainability, the school implements monitoring, evaluation, and capacity-building mechanisms: regular weighing and reporting schedules, refresher training for students and teachers, and parental involvement through announcements and community service

activities. Challenges such as inconsistent sorting at home or fluctuating prices for recyclable materials are addressed through intensive communication strategies, non-material incentives (rewards for the cleanest class), and diversified activities. Overall, this structured and integrated waste management practice goes beyond cleaning the school environment; it also fosters character development in students through discipline, cooperation, and responsibility.

Formation of the Ecological Character of MI Students

Qur'anic values in the context of environmental education at MI Salafiyah Simbang Kulon 02 Pekalongan serves as a spiritual foundation that guides the formation of students' environmentally conscious character. Through understanding verses such as QS. Al-Baqarah: 30 and QS. Ar-Rum: 41, students are not only introduced to the concept of the caliph and the consequences of damage to the earth, but are also encouraged to realize that protecting the environment is part of obedience to Allah. This spiritual awareness builds a spiritual internalization dimension or caliph consciousness, namely the understanding that humans have a moral and religious responsibility to care for the earth. This process fosters a love for nature as God's creation, while also instilling the meaning of worship in every small action such as maintaining cleanliness, planting trees, or sorting waste (Akbar, 2023)

Quranic reflection encourages students to think critically about the causes and consequences of damage to the earth and the relationship between humans and their environment (Andini, 2022). Quranic verses with social realities around them, such as the problems of waste, flooding, and pollution in Pekalongan. This process develops ecological analysis skills: they understand that consumptive behavior, excessive use of plastic, or the habit of littering can cause environmental damage that leads to disasters. This understanding emphasizes the importance of behavioral change and fosters a faith-based, solution-oriented mindset, where science and religious teachings complement each other in shaping ecological awareness.

Qur'anic values is manifested in the form of concrete behavior and daily habits. Students not only conceptually understand the importance of protecting the environment, but are also accustomed to doing so consistently by disposing of waste properly, conserving water and electricity, and participating in recycling activities with the Waste Bank. This habituation forms a sustainable moral habit where environmental care is no longer driven by external commands, but by self-awareness and the responsibility of faith. This is the highest stage of character education, when Qur'anic values become part of the student's personality, guiding their behavior autonomously (Aisyah & Hidayah, 2024).

Throughout this process, teachers act as facilitators of values and role models for ecological behavior. Teachers not only deliver teaching materials but also model behaviors that reflect environmental concern, such as disciplined cleanliness, energy conservation, and active participation in school greening activities. Teachers' exemplary behavior is an effective form of *da'wah bil hal*, as elementary school students learn more easily through observation and imitation (Tajiri, 2020). Furthermore, teachers serve as reflective guides, helping students understand the connection between religious values and everyday actions. With these active roles, the internalization of spiritual, cognitive, and affective processes occurs harmoniously, producing a young generation that is not only knowledgeable and devout but also has ecological morals in accordance with Islamic teachings.

Discussion

The findings of this study indicate that the concept of the caliph in Surah Al-Baqarah: 30 provides a strong theological foundation for developing environmental education at the Islamic elementary school level. The verse depicts humans as trustees of the earth's care, and field findings confirm that this value has been internalized through educational practices at MI Salafiyah Simbang Kulon 02 Pekalongan. The implementation of hygiene habits, energy conservation, and environmental awareness activities demonstrates that theological teachings can be operationalized in everyday ecological behavior. This aligns with Islamic ecopedagogy literature that emphasizes the relationship between spirituality, morality, and ecological action (Akbar, 2023; Dwijaya & Rigiанти, 2024), thus supporting the study's objective that Qur'anic values can be a medium for ecological character formation.

Interpretation of Surah Ar-Rum: 41 further strengthens the relevance of environmental education for elementary-aged students. This verse emphasizes that ecological damage is a consequence of human behavior, and the findings indicate that students are able to identify the cause-and-effect relationship between their actions and environmental conditions. This awareness is built through a contextual learning approach that connects the meaning of verses to real-world phenomena such as pollution, plastic waste, and local flooding. These results are consistent with environmental education literature that emphasizes the importance of a contextual and reflective approach in developing students' ecological understanding (Santi, 2022; Handiyati et al., 2023).

The school's collaboration with the Pekalongan City Waste Bank plays a crucial role in strengthening the internalization of these ecological values. The waste sorting, recycling, composting, and savings programs not only facilitate students' practical learning experiences but also broaden their understanding of social systems and collective responsibility for protecting the environment. This model aligns with experiential learning theory, which states that direct experience is a key factor in developing ecological awareness and behavior. Furthermore, the integration of Quranic values into these activities enriches the spiritual aspect of learning, transforming students' ecological experiences into not only technical but also moral and religious ones.

The formation of students' ecological character occurs through the integration of spiritual, cognitive, and affective dimensions. In the spiritual dimension, students understand that protecting the environment is part of obedience to God. In the cognitive dimension, students begin to understand the dynamics of environmental damage and its causes. Meanwhile, in the affective dimension, behavioral changes were observed, including consistent practice of environmentally conscious habits at school. Teachers' role models reinforce this internalization process, as students tend to learn through observation and imitation. This finding is consistent with character education theory, which emphasizes the role of behavioral models in shaping moral habits (Tajiri, 2020).

This study has several limitations that should be considered when interpreting the results. First, the external validity of the study may be limited because the sample was drawn from only one madrasah, so generalizing the results to other schools requires caution. Social, cultural, and programmatic conditions in other schools may differ, and the implementation of Qur'anic-based environmental values may produce different dynamics. Second, this study relied heavily on observations and interviews, potentially exposing both researchers and informants to subjective bias. Third, the measurement of ecological character change was not supported by a standardized quantitative instrument such as an ecological behavior scale, so more objective

measurements were not conducted. Furthermore, the study did not cover a long period of time to assess the sustainability of student behavior, so long-term impacts cannot be determined.

Future research could expand the sample to several schools with different environmental programs to increase external validity. Using mixed methods with quantitative instruments such as ecological attitude scales, environmental awareness scales, or standardized observation sheets would provide a more objective picture of student character development. Longitudinal studies are also needed to measure the long-term sustainability of ecological habits. Furthermore, research could explore the effectiveness of specific interventions for example, environmentally-based Quranic learning modules or project-based learning programs integrated with ecological verses to determine which strategies are most effective in shaping ecological character.

Overall, the results of this study indicate that environmental education that integrates Qur'anic values, school habits, and collaborative programs such as the Waste Bank has great potential in shaping the ecological character of MI students. This approach not only develops ecological knowledge and behavior, but also strengthens the underlying spiritual and moral foundations. The integration of the teachings of QS. Al-Baqarah: 30 and QS. Ar-Rum: 41 in the practice of environmental education confirms the theoretical and practical contributions of this study to the development of character education and Islamic ecopedagogy. Despite its limitations, the research findings can form the basis for policy development and innovation of environmental education programs in Islamic schools in the future.

Conclusion

The results of this study confirm that reflection on the verses of the Qur'an , especially QS. Al-Baqarah: 30 and QS. Ar-Rum: 41, has significant implications for the formation of environmentally conscious character of students in elementary Islamic educational institutions. The verses about *the caliph fil ardh* provides a theological basis that humans have a moral and spiritual responsibility to protect and prosper the earth, while the verse about *the facade of fil ardh* serves as a warning against the destructive consequences of exploitative human behavior. These two verses, when internalized through a contextual learning approach and real-life activities such as sorting and recycling waste, have been shown to foster students' ecological awareness based on faith and responsibility as caliphs. Thus, the research question of how reflection on the verses of the caliph and the destruction of the earth can be implemented in the formation of students' environmental character is answered empirically through waste management practices at MI Salafiyah Simbang Kulon 02 Pekalongan, which involve collaboration with the Pekalongan City Waste Bank.

Theoretically, this study strengthens the concept of Islamic ecopedagogy, which integrates Qur'anic spiritual values with ecological character education. These findings enrich modern Islamic educational theory, which emphasizes the balance between intellectual, emotional, and ecological intelligence. The integration of thematic interpretation into environmental learning demonstrates that religious values can serve as an epistemological foundation for building sustainable ecological awareness. These results also align with Sehlawi's research. (2020) and Amalia (2024) on environmental education based on Islamic values, but has innovation in practical application through school partnerships with waste management institutions, an approach that has not been widely developed in the context of Islamic basic education in Indonesia.

From a practical perspective, waste management activities that directly involve students not only improve the cleanliness of the school environment but also foster social skills such as

cooperation, discipline, and responsibility. Implementing Quranic values in concrete activities provides a holistic experience that connects faith, knowledge, and good deeds. This demonstrates that faith-based environmental education can be an effective solution for building ecological character that is not merely administrative but rooted in spiritual awareness. However, this study's limitations lie in its limited scope within a single institution and the lack of longitudinal measurement of long-term changes in student character.

Further research is recommended to expand the object of study to other madrasas or schools with different characteristics to test the consistency of the ecological verses reflection model in a broader context. In addition, comparative studies between institutions can be conducted to identify pedagogical and cultural factors that influence the effectiveness of environmental education based on Qur'anic values. The pedagogical implications of this study indicate the importance of training for teachers in understanding the ecological interpretation of the Qur'an and integrating it into thematic learning activities. Thus, the results of this study not only contribute to the development of Islamic ecopedagogy theory, but also offer a practical model for elementary education institutions to build a generation with the character of *rahmatan lil 'alamin*, a generation that is faithful, knowledgeable, and has ecological morals in maintaining the sustainability of the earth created by Allah SWT.

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Conflict of interests

The authors declared that they had no conflicts of interest with respect to the research, authorship, or publication of this article.

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