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ISLAMIC ECOTHEOLOGY IN EDUCATION: FROM ENVIRONMENTAL ETHICS TO ECOLOGICAL AGENCY - A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

The global ecological crisis demands that education not only build environmental knowledge but also shape students' ethical and spiritual orientations and their capacity to solve ecological problems actively. In Islamic education, ecotheology provides a conceptual foundation through the ideas of *tawhīd*, *khalīfah*, *amānah*, *mīzān*, *rahmah*, and the prohibition of *isrāf* and *fasād fī al-ard*. However, the growing literature shows that these values are still often treated as normative principles and have not always translated into students' capacity to act as ecological agents. This study aims to synthesize research on Islamic ecotheology in education, identify how Islamic ecological values are integrated into educational practices, and analyze the shift from forming environmental ethics to ecological agency. The research used a systematic literature review method following the PRISMA 2020 guidelines. The study searched international scientific databases using keywords related to Islamic ecotheology, Islamic environmental ethics, Islamic education, environmental education, ecological agency, and sustainability. The authors analyzed the literature through thematic synthesis to identify theological foundations, pedagogical approaches, institutional contexts, forms of ecological practice, and mechanisms for forming ecological agency. The synthesis shows that research can be grouped into four main orientations: (1) ecotheology as the foundation of environmental ethics; (2) internalization of ecological values through curriculum and pedagogy; (3) institutionalization through schools, madrasas, and Islamic boarding schools; and (4) transformation of values into ecological practices and agency. This article proposes a conceptual framework of Islamic Ecotheological Ecological Agency, which explains the transformation from theological awareness to ethical commitment, ecological competence, collective participation, and ecological action. These findings broaden the discourse of Islamic education by positioning students not only as recipients of environmental values, but as actors capable of responding to the ecological crisis.

Keywords: Islamic Ecotheology; Islamic Education; Environmental Ethics; Ecological Agency; Sustainability Education; Islamic Ecological Education; SLR.

1 INTRODUCTION

The contemporary ecological crisis has become a multidimensional issue related not only to changes in environmental conditions but also to the sustainability of social, economic, and human life. Climate change, ecosystem degradation, biodiversity loss, pollution, and the exploitation of natural resources show that ecological problems cannot be solved solely through technological and regulatory approaches (Awewomom et al., 2024). The crisis is also rooted in how humans understand their relationship with nature, including values, moral orientations, consumption patterns, and responsibilities for sustaining life (Stinus et al., 2024; Artmann, 2023). Education holds a strategic position because it functions not only as a means of transmitting knowledge but also as a space for forming values, ethical orientations, competencies, and individual capacities to respond actively to socio-ecological issues.

The learning orientation in environmental education is gradually shifting from simply increasing environmental knowledge and awareness to building capacity for decision-making and implementing sustainable actions. This shift matters because environmental knowledge does not always lead to changes in attitudes or actions (Colombo et al., 2023). Sustainability-oriented education needs to integrate cognitive, affective, ethical, and practical dimensions (Çakar Özkan, 2026) so students not only understand ecological issues but can also connect that knowledge to moral choices and actions in everyday life. This perspective opens up space for religion and spirituality to contribute to environmental education, especially in societies where religious values are a primary source of moral formation.

The relationship between humans and nature has a strong theological and ethical foundation in the Islamic context. The literature on Islam and ecology shows that the Islamic tradition provides conceptual resources for understanding the environment through ideas of human responsibility, the balance of creation, trust, and the interconnectedness of all life with God's will (Foltz, 2003; Syukri et al., 2024; Nur et al., 2025). The concept of *tawhīd*, for example, places nature within the unity of God's creation, while *khalīfah* includes the dimension of human responsibility for managing the earth. Similarly, trust can be understood as moral responsibility, while *mīzān* represents the principle of balance and order in creation (Arif, 2025). In Islamic ecotheology, these concepts form the basis for an environmental ethic that positions humans not as absolute rulers over nature, but as part of the created order with a moral responsibility for sustaining life (Sayem, 2023; Sahlawati Abu Bakar et al., 2025; Shaleh & Islam, 2024).

These studies then gave rise to the discourse of Islamic ecotheology, an approach that connects Islamic beliefs, values, and principles with ecological issues. Studies on Islam and ecology have shown that Islamic sources can help reconstruct environmental ethics and respond to the modern ecological crisis (Foltz, 2003; Syukri et al., 2024). Subsequent developments expanded the discourse from theological issues to social and environmental practices, including Muslim activism, conservation, Islamic environmental law, and Muslim communities' responses to ecological issues (Gade, 2023; Kurbiyanto et al., 2024). Thus, Islamic ecotheology can no longer be understood solely as a normative study of Qur'anic verses about nature, but as a field that connects the Islamic worldview, ethics, social practices, and ecological responsibility.

Islamic education is a crucial space for translating this theological framework into the development of students' ecological behavior and capacities. Through education, concepts such as *khalīfah* (vicegerent), *amanah* (trust), *mīzān* (property), *rahmah* (righteousness), and the prohibition of *isrāf* (enforcement) can be developed into learning resources for environmental responsibility (Lestari & Azizah, 2025). Thus, Islamic education can integrate ecological knowledge with spiritual and moral dimensions. However, this potential cannot be realized automatically simply by adding environmental material to the curriculum. A pedagogical process is needed to help students understand ecological issues, reflect on them ethically, internalize responsibility, and translate this into concrete actions.

Recent research has shown growing attention to the relationship between ecotheology and Islamic education. A systematic literature review published in 2025 identified that the integration of ecotheology in Islamic Religious Education occurs through curriculum strengthening, contextual-reflective pedagogy, experiential and project-based learning, and authentic assessment. However, the study also identified limitations, including a lack of standardized learning outcome indicators and evaluation instruments to measure the achievements of ecotheology-based education (Misa et al., 2026). These findings indicate that the literature has begun to move from normative discussions to educational implementation. However, the relationship between the internalization of ecotheological values and students' capacity for ecological action still requires more systematic explanation.

Literature developments in 2026 increasingly show that research on ecotheology and Islamic education is becoming a distinct field of study. Hariyanto et al. (2024), For example, a systematic review of Indonesian-affiliated research identified four dominant themes: integrating Islamic teachings with environmental conservation, the role of religious institutions and communities, internalizing ecological values through education, and conservation practices and their outcomes. The study also demonstrated the role of Islamic boarding schools and Muslim organizations in translating ecotheological principles into environmental action. Meanwhile, another study maps Islamic education from an

ecological perspective across three domains: the foundations of the Qur'an's ecological ethics, pedagogical implementation in Islamic educational institutions, and the relationship between Islamic education and sustainable development (Hamdan, 2026).

Despite the increasing development of ecotheology and Islamic environmental education studies, the literature still shows conceptual gaps. First, the values of *tawhīd*, *khalīfah*, *amanah*, *mizān*, *rahmah*, and *isrāf* remain largely at the normative-theological level. In contrast, pedagogical designs that translate these values into ecological action have not been adequately developed (Moh Subhan et al., 2026). Thus, a gap remains between what Islam teaches about nature and how Islamic education enables learners to act on that teaching. Second, research emphasizes environmental awareness, character, responsibility, and environmentally friendly behavior. In contrast, the concept of ecological agency, which encompasses the ability to understand ecological issues, conduct ethical considerations, make decisions, participate in collective action, and influence environmental conditions, remains relatively understudied, including in aspects of child agency, social justice, and experiential pedagogy. Third, the study of Islamic ecotheology is still fragmented between theological discourse, educational practice, and environmental action, although the integration of the three is important to explain how religious values are transformed into ecological capacity; the latest SLR has connected the foundations of the Qur'an, pedagogical implementation, and sustainable development, but still focuses on mapping the domain and integration of Islamic education with sustainability (Hamdan, 2026). Therefore, a synthesis is needed that explains the mechanism of transformation from ethical orientation to ecological agency, because ecological education that stops at knowledge transfer or value internalization risks creating a gap between what students know, believe, and do.

Based on these developments, this article positions ecological agency as an analytical lens for rereading the literature on Islamic ecotheology in education. This article does not intend to re-map Islamic ecological concepts or identify forms of ecotheology integration in the curriculum. Instead, it explores the relationship between Islamic theological foundations, environmental ethics, educational processes, ecological competence, participation, and ecological action. With this approach, this article seeks to bridge two previously relatively separate areas: the study of Islamic environmental ethics and the study of educational agency for sustainability.

Based on this background, this study aims to (1) map the development of research on Islamic ecotheology in education; (2) identify Islamic theological and ethical concepts used as the foundation of ecological education; (3) analyze how these values are translated into curriculum, pedagogy, institutional culture, and ecological practices; and (4) synthesize how the literature explains the process of transformation from environmental ethics to ecological agency. Thus, this study's main contribution is expected to be not only a literature map, but also a conceptual understanding of how Islamic education can transform normative ecological values into reflective, participatory, and transformative ecological capacities.

Thus, this article positions ecological agency not simply as a product of environmental learning, but as a meeting point between Islamic theology, environmental ethics, pedagogy, and ecological action. This perspective is expected to broaden the discourse on Islamic education from teaching ecological values to cultivating ecological agency.

2 METHOD

This study used a Systematic Literature Review (SLR) to identify and synthesize research on Islamic ecotheology in education, specifically the shift from environmental ethical values to ecological agency. The review and reporting process referred to PRISMA 2020 (Page et al., 2021). The analysis focused on the relationship between Islamic theological values, educational processes, ecological competence, participation, and ecological action.

The literature search used Scopus as the primary database, with Web of Science and ERIC as additional sources, using backward and forward citation searching. The search included publications from 2015–2026. It used ecotheology, Islamic environmental ethics, Islamic education, madrasah, Islamic boarding school, curriculum pedagogy, and ecological agency as analytical constructs. Included articles published in English journals between 2015 and 2026, substantively related to Islam, ecology, and education, and available in full text. We excluded editorials, opinion pieces, reviews, non-peer-reviewed publications, and studies not relevant to education and ecology.

Selection followed the identification, screening, eligibility, and inclusion stages, following PRISMA 2020 (Page et al., 2021). Extracted data included author and year, research context, educational level, research design, Islamic ecotheology concept, educational dimensions, forms of ecological value integration, key findings, and forms of ecological competency, participation, and action. We assessed study quality based on the suitability of objectives and design, clarity of data collection and analysis, transparency of the data-findings relationship, and research limitations.

We analyzed the data using thematic synthesis through descriptive coding, analytical coding, and thematic synthesis. The results of the synthesis were grouped into four themes: (1) theological foundation, (2) pedagogical translation, (3) institutional embedding, and (4) ecological agency. To analyze the transformation from environmental ethics to ecological agency, the Islamic Ecotheological Ecological Agency Framework (IEEAF) was used, which includes five dimensions: theological grounding, ecological meaning-making, ecological competence, participatory agency, and transformative ecological action. The framework was used as an analytical lens to identify how ecotheological values are translated through education into ecological capacity and transformative action.

3 RESULT

3.1 Characteristics of the Literature Reviewed

The synthesis results show that research on Islamic ecotheology and education has grown significantly in recent years, particularly in 2025–2026. Several recent systematic literature reviews demonstrate increasing academic attention to the relationship between Islamic values, environmental education, sustainability, and ecological practices. Sapitri et al. (2025), for example, identified 33 studies that met the inclusion criteria for a review of integrating ecotheology into Islamic Religious Education. The study demonstrated that ecotheological integration is related to the development of students' spiritual, social, and cognitive character.

Kajian Saputra et al. (2026) study, which focused on Indonesian-affiliated research, also showed an increase in publications on ecotheology and Islamic education, with a surge in 2025. Four dominant themes found included the integration of Islamic teachings in environmental conservation, the role of religious institutions and communities, internalization of ecological values through education, and conservation practices and ecological outcomes. Meanwhile, Hamdan (2026) reviewed 56 Scopus records in a study on Islamic education from an ecological perspective. The study brought together three previously separate domains: the ecological ethical foundations of the Qur'an, pedagogical implementation in Islamic educational institutions, and policy and practice pathways toward sustainable development.

Tabel 1: Reviewed Literature

Researchers	Year	Coverage/Corpus	Focus of Study	Key Findings
Sapitri et al.	2025	33 selected studies	Integration of ecotheology in Islamic Religious Education	Ecotheology is integrated with Islamic education and contributes to the development of students' spiritual, social, and cognitive character.
Sapitri et al.	2025	33 selected studies	Integration of ecotheology in Islamic Religious Education	Ecotheology is integrated with Islamic education and contributes to the development of students' spiritual, social, and cognitive character.
Hamdan	2026	56 Scopus records	Islamic education with an ecological perspective	Integrating three domains: the ecological ethics of the Qur'an, pedagogical implementation in Islamic educational institutions, and sustainable development policies and practices.

These findings show that the available literature can be grouped into four main orientations: (1) theological and ethical foundations, (2) translating values into pedagogy, (3) institutionalizing ecological values in educational institutions, and (4) developing ecological awareness, competence, and action. These patterns form the basis for the thematic synthesis in this study.

3.2 Islamic Ecotheology as a Foundation for Environmental Ethics

The first theme shows that Islamic theological values are the most consistent foundation in the ecological education literature. The concepts of *tawhīd*, *khalīfah*, *amanah*, *mīzān*, *rahmah*, and the prohibitions of *isrāf* and *fasād fī al-ard* (Causing destruction on the face of the earth) are used to explain the ethical relationship between humans, God, and nature. Moh Subhan et al. (2026) found that these concepts are predominantly positioned as the ethical and spiritual basis for Islamic-based environmental education.

In this construction, the environment is not only understood as an object to be protected, but as part of human moral responsibility. The concept of *khalīfah* directs humans to the responsibility of managing the earth, *amanah* emphasizes responsibility, and *mīzān* provides the principle of balance in the relationship between humans and nature. Therefore, Islamic ecotheology provides a normative basis for situating environmental issues within religious life and education.

However, a literature synthesis also shows that these concepts often remain at the normative level Moh Subhan et al. (2026) explicitly found that most literature still places Islamic values in a theological-normative context without developing a concrete and systematic pedagogical design.

Thus, the research results indicate a gap between theological legitimacy and the operationalization of education. Islamic ecological values have a strong conceptual foundation, but their translation into learning outcomes, ecological competencies, and capacity for action has not developed proportionately.

3.3 Translating Ecotheological Values into Curriculum and Pedagogy

The second theme shows that ecotheological values are beginning to be translated into the curriculum and learning process. This integration includes linking religious material to environmental issues, contextual learning, hands-on experiences, environmental projects, habituation, and teacher role models

Sapitri et al. (2025), showed that integrating ecotheology into Islamic Religious Education relates to curriculum strengthening, the use of contextual-reflective approaches, experiential and project-based learning, and the development of student character. Taufikin (2025) findings reinforce this pattern. A study of three Islamic elementary schools in Demak showed that integrating the principles of *khalifah*, *amanah*, and *mizān* into learning can improve students' understanding of the relationship between Islamic teachings and ecological responsibility. Experiential learning and teacher role models were important factors in encouraging ecological practices such as reforestation, waste management, and wise energy use.

A similar pattern emerges in Islamic boarding schools. Research on two eco-pesantren in Indonesia shows that environmental education can be integrated into both fiqh learning and community-based practices. The study found high levels of ecological awareness among students, but the relationship between religiosity and ecological awareness was weak. This finding suggests that a religious foundation alone does not automatically produce strong ecological literacy and behavior; strengthening ecological competence is still necessary (Khoirurrijal et al., 2026). Thus, the synthesis shows that pedagogy connects theological values with students' ecological experiences. The values of *khalifah* or *amanah* become more meaningful when presented through experience, reflection, projects, problem-solving, and real-life practice.

3.4 Institutionalization of Ecotheology in the Educational Ecosystem

The third theme shows that the transformation of ecological education occurs not only at the curriculum level, but also through the culture and governance of educational institutions. The eco-pesantren context is one of the most prominent examples in the literature because it allows religious values to be applied in everyday life.

Research by Adzillah et al. (2025) indicates that formal cleanliness rules in eco-pesantren environments do not always translate consistently into students' ecological behavior. Change occurs through a process of meaning-making within the shared living environment, evolving from viewing cleanliness as a matter of personal comfort to a collective responsibility, and ultimately understanding it as an expression of *amanah* (trust/stewardship), *adab* (proper conduct), and the human role as *khalifah* (steward of the earth). These findings matter because they show that institutional rules alone cannot foster ecological agency. Peer culture, role modeling, shared lived experiences, and meaning-making all play a role in transforming rule compliance into a more internalized sense of ecological responsibility.

The literature is also beginning to develop a "whole-institution" approach. Widodo (2026), for instance, proposes four pillars of the eco-pesantren (eco-Islamic boarding school) model: Green Curriculum, Green Learning, Green Activity, and Green Management. These four pillars link the values of *khalifah* (stewardship), *mizān* (balance), and *amānah* (trust/responsibility) with the curriculum, learning processes, daily activities, and institutional governance. This pattern reflects a significant shift from environmental education as classroom content to environmental education as institutional culture. From this perspective, ecological education is not merely taught but also experienced through policies, facilities, habits, social relationships, and institutional practices.

3.5 From Ecological Awareness to Ecological Agency

The fourth theme is the most relevant to this research focus. The literature shows a progression from environmental awareness to ecological behavior, but the process leading to ecological agency remains inadequately explained.

Several studies have shown that ecotheology-based education can lead to behavioral changes. Studies in Islamic boarding schools, for example, found water conservation, reduced energy consumption, waste sorting, plastic reduction, and reforestation as part of integrating Islamic values with ecological practices (Al Makrufah & Abror, 2026). However, individual behavioral changes are not entirely synonymous with ecological agency. Agency has broader dimensions,

namely the ability to understand problems, develop ethical considerations, make decisions, participate with others, and influence socio-ecological conditions

Adzillah et al. (2025) found that the shift from compliance with rules to collective responsibility provides important indications of the emergence of the agency dimension. However, the study did not explicitly use the concept of ecological agency. The same pattern appears in Saputra et al. (2026), which found that Islamic boarding schools play a similar role in translating logical principles into concrete conservation actions. This finding demonstrates that ecological agency can develop not only at the individual level, but also at the community and institutional levels.

This sequence demonstrates that ecological agency does not emerge automatically after students acquire ecological knowledge or values. It requires an educational process that connects religious meaning, ecological knowledge, experience, reflection, competence, and opportunities for action.

3.5.1 Thematic Synthesis and Framework of Islamic Ecotheological Ecological Agency

The overall synthesis reveals five dimensions that can explain the transformation from Islamic ecotheology to ecological agency.

Table 2: Thematic Synthesis and Framework of Islamic Ecotheological Ecological Agency

Dimensions	Main Focus	Form of Education	Results Orientation
Theological Grounding	<i>Tawhīd, khalīfah, amānah, mīzān, rahmah</i>	Values and religious education	Normative awareness
Ecological Meaning-Making	The meaning of human-nature relations	Reflection, dialogue, contextualization	Ecological responsibility
Ecological Competence	Ecological knowledge and skills	Literacy, projects, problem solving	Ecological capacity
Participatory Agency	Collective decision making and engagement	Collaboration, community action, social projects	Ecological participation
Transformative Ecological Action	Changes in practice and environment	Conservation, advocacy, innovation, governance	Socio-ecological transformation

These five dimensions form the Islamic Ecotheological Ecological Agency Framework (IEEAF). This framework builds on previous studies that generally focused on the relationship between Islamic values, environmental education, and ecological awareness. Sapitri et al. (2025) emphasized spiritual, social, and cognitive characteristics; Saputra et al. (2026) mapped the integration of teachings, institutions, internalization of values, and conservation; while Subhan et al. (2026) highlighted the need to develop more practical pedagogical designs, including learning experiences, child agency, and social justice.

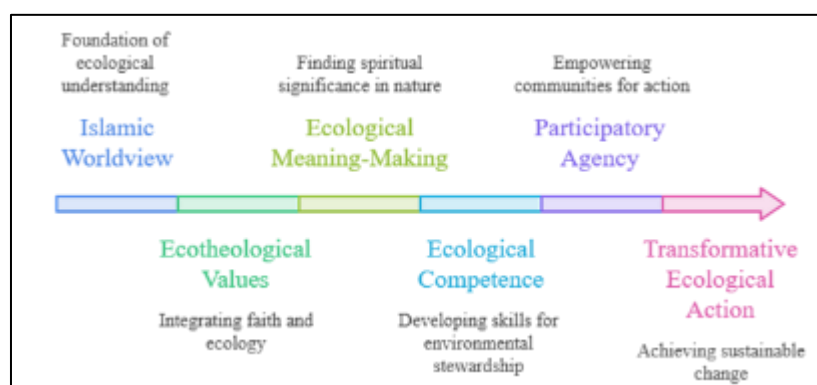


Figure 1: the IEEAF Framework for Ecological Transformation

Thus, the research findings indicate that Islamic ecotheology's primary contribution to education lies not solely in adding environmental content to religious education. Its contribution lies in its ability to connect the Islamic worldview with ecological meaning-making, competence, participation, and transformative action. The IEEAF framework positions this process as an analytical continuum:

These findings also demonstrate that while much of the literature has shifted from normative ecological ethics to educational practice, evidence on how students develop into ecological actors capable of making decisions, collaborating, and influencing socio-ecological change remains relatively limited. This gap provides an important basis for further discussion on the transformation from environmental ethics to ecological agency.

4 DISCUSSION

4.1 The Shift in Islamic Ecotheology from a Normative Foundation to a Transformative Orientation

The results indicate that Islamic ecotheology in education has a strong normative foundation in the concepts of *tawhīd*, *khalīfah*, *amanah*, and *mīzān*, which provide a theological basis for human relations with nature and the responsibility to maintain ecological balance. This finding is consistent with the systematic literature review. Sapitri et al. (2025) showed that integrating ecotheology into Islamic Religious Education is linked to the development of students' spiritual, social, and cognitive character. However, recent literature suggests that the primary issue is no longer the availability of ecological values in Islamic teachings, but rather how these values are transformed into experiences and capacities for action.

Moh Subhan et al. (2026) found that most literature still places *tawhīd*, *khalīfah*, *amanah*, *mīzān*, *rahmah*, and *isrāf* within a normative-theological framework, while practical pedagogical designs that link these values to ecological learning remain limited. These findings highlight an important distinction between normative presence and educational transformation: the presence of ecological values in the curriculum or religious discourse does not, by itself, indicate that students have acquired the capacity to apply these values in real ecological situations. Within the transformative learning framework, learning becomes transformative when students not only acquire new information but also change how they understand, assess, and respond to reality through critical reflection and meaningful experiences (Mezirow, 2018).

This perspective is relevant to Islamic ecological education because the concept of *khalīfah*, for example, is not sufficiently understood as the doctrine that humans are guardians of the earth, but needs to be translated into the ability to recognize ecological issues, reflect on the moral consequences of human actions, consider ecological and social interests, and make responsible decisions. Taufikin (2025) research in three Islamic elementary schools in Demak showed that operationalizing the principles of *khalīfah*, *amānah*, and *mīzān* through learning, observation, and institutional activities is associated with increased environmental awareness and student behavior. Similar findings are seen in the research of Mundofi & Habibi (2026) who proposed Green Islamic Pedagogy by placing the principles of *tawhīd*, *khalīfah*, and *amānah* not only as teaching materials, but as part of learning objectives, learning materials, classroom interactions, and reflective activities to build ecological awareness, moral sensitivity, and environmentally responsible practices. In fact, a study on *khalīfah* fil ardh in Islamic Religious Education learning confirms that the concept has pedagogical consequences when integrated with learning materials, contextual approaches, and the formation of environmental responsibility (Pratama et al., 2024).

Thus, the results of this study strengthen the argument that Islamic ecotheology must shift from the ethics of ecological responsibility to the pedagogy of ecological agency. This shift means that the success of ecotheological education is not solely measured by the extent to which students understand the concept of *khalīfah* or express concern for the environment, but rather by the extent to which they can connect religious values with ecological issues, engage in ethical reflection, make decisions, participate in collective action, and influence their social environment. In this context, ecotheology functions not merely as a religious justification for environmental care, but as a source of moral orientation operationalized through pedagogy, experience, and action. This shift provides the conceptual basis for the Islamic Ecotheological Ecological Agency Framework (IEEAF), which positions the transformation of theological values, ethical meaning, pedagogical experience, capacity to act, and ecological agency as the primary mechanisms of Islamic-based ecological education.

4.2 Pedagogy as a Mechanism for Transforming Values into Ecological Competence

The findings show that pedagogy is a key mechanism connecting theological values with ecological behavior and action. The values of *tawhīd*, *khalīfah*, and *amanah* acquire educational significance when students confront concrete ecological issues through contextual learning, reflection, direct experience, and environmental projects.

These findings reinforce the view that Islamic-based ecological education cannot simply be achieved by adding one or more environmental topics to the Islamic Religious Education curriculum. Education needs to create learning experiences that enable students to connect religious texts with ecological realities. Recent literature on green Islamic pedagogy, for example, Mundofi & Habibi (2026) shows that integrating the principles of *tawhīd*, *khalīfah*, and *amanah* into learning objectives, teaching materials, classroom interactions, and reflective activities is associated with increased ecological awareness and environmentally responsible practices.

From the IEEAF perspective, this process can be understood as a shift from theological grounding to ecological meaning-making. This means that students not only learn that Islam teaches environmental concern, but also begin to construct meaning that environmental issues have moral and religious consequences. At this stage, ecological learning becomes an interpretive process that connects Islamic teachings with everyday life experiences.

Furthermore, meaning-making needs to develop into ecological competence. Ecological competence encompasses the ability to understand environmental issues, analyze their causes and impacts, evaluate alternative courses of action, and use this knowledge to solve problems. Thus, Islamic ecotheological education fosters not only positive environmental attitudes but also the capacity to act.

This is important because research suggests a potential mismatch between religiosity and ecological behavior. A study of eco-pesantren found that although students' ecological awareness was relatively high, the relationship between religiosity and ecological awareness was not always strong. This finding indicates that internalizing religious values does not automatically result in ecological competence or behavior without educational experiences that explicitly connect these values to ecological knowledge and practice.

Therefore, pedagogical translation becomes a critical point in ecotheological transformation. Theological values provide moral orientation, but pedagogy provides the mechanisms for transforming that orientation into knowledge, skills, reflections, and experiences that students can use to address ecological issues.

4.3 From Environmental Education to Education for Ecological Agency

The results indicate that pedagogy is an important mechanism connecting theological values with ecological knowledge, competence, and action. The values of *tawhīd*, *khalifah*, and *amanah* gain educational meaning when students not only learn them as religious concepts but also confront them with concrete ecological issues through contextual learning, direct experience, reflection, dialogue, and environmental activities. This perspective aligns with the study (Rahman et al., 2025) which shows that Islamic-based environmental education requires a shift from merely conveying values to learning experiences that enable students to connect religious teachings with ecological realities.

Zul et al. (2026) emphasized the importance of experiential learning pedagogy and the use of natural spaces in Islamic environmental education, while also showing that the dimensions of child agency and social justice are still relatively underdeveloped in the literature. These findings are reinforced by Munawir et al. (2026) through Eco-Theological Pedagogy in Islamic Education, which places the principles of *tawhīd*, *khalifah*, and *amanah* not only as learning content, but as part of learning objectives, teaching materials, classroom interactions, and reflective activities to build ecological awareness, moral sensitivity, and environmentally responsible practices.

Thus, pedagogy from the IEEAF perspective can be understood as a translation mechanism that transforms theological grounding into ecological meaning-making: students begin to understand that environmental damage is not merely a technical issue but also has moral, social, and religious dimensions. This process can be explained through a transformative learning perspective that views learning as changing how students understand and interpret experiences through critical reflection (Mezirow, 2018).

At the same time, these concrete experiences and reflections enable the formation of ecological competence, namely the ability to understand environmental issues, analyze cause-and-effect relationships, evaluate action options, and use knowledge and skills to respond responsibly to ecological issues. Islamic ecotheological education is not solely directed at developing good environmental attitudes, but needs to move toward developing the capacity to act. Recent empirical findings from Islamic boarding schools (pesantren) in Indonesia reinforce this argument. Khoirurrijal et al. (2026) found that students at two eco-pesantren had relatively high levels of ecological awareness. Still, the relationship between religiosity and ecological awareness was weak ($r = 0.178$), so religious values alone do not automatically lead to higher levels of ecological awareness. This study explicitly emphasizes the importance of strengthening critical ecological literacy to encourage pro-environmental behavior.

Other findings regarding eco-pesantren culture indicate that formal hygiene regulations do not always immediately translate into ecological behavior; internalization develops through shared life experiences, peer interactions, and meaning-making processes, from pragmatic compliance to collective responsibility and, in some students, to ecological meaning as a mandate, good manners, and the embodiment of the role of *khalifah* (Adzillah et al., 2025). This suggests that values require pedagogical experience to become competence, and competence requires opportunities to act to develop agency. Therefore, within the IEEAF framework, the transformation process can be formulated as theological values, pedagogical experience, ecological meaning-making, ecological competence, and ecological agency. In the initial stage, Islamic values provide moral orientation; pedagogy then presents experience and context; reflection constructs ecological meaning; competence provides the capacity to understand and evaluate problems; while the experience of action enables students to use these capacities to make decisions and participate in solving ecological problems.

Thus, pedagogical translation is a critical point in the transformation of Islamic ecotheology because it determines whether religious values remain normative knowledge or develop into a real capacity for action. In this context, transformative ecotheological education is not simply teaching environmental values, but creating learning conditions in which religious values are interpreted, experienced, tested, and enacted through ecological action.

4.4 Educational Institutions as Spaces for the Formation of Ecological Agency

The study's findings indicate that ecological agency forms not only through classroom learning but also through the institutional environments in which students live their daily lives. Policies, leadership, organizational culture, facilities, rules, social relations, and routine practices create contexts that enable students not only to understand ecological issues but also to experience, negotiate, and respond to them. Therefore, educational institutions should be understood as socio-ecological spaces that continuously shape students' capacity to act.

This perspective aligns with the whole-institution approach to sustainability education, which positions sustainability not as an additional curriculum topic, but as a principle integrated into learning, governance, infrastructure, daily life, and the institution's relationship with the community. Studies of nature-based schools in Indonesia show that ecological responsibility is perceived to grow through the interconnectedness of green education philosophy, experiential learning, institutional support, ecological practices, and community engagement (Widodo, 2026; Maretta et al., 2026).

In the context of Islamic education, these findings gain an additional dimension because institutional life can serve as a medium for actualizing the values of *khalifah*, *amanah*, and *mīzān*. Studies on eco-pesantren (Islamic boarding schools) show that ecological values do not stop at theological legitimacy but must be translated into leadership, curriculum, habituation, learning spaces, and environmental management practices. A study Akrom et al. (2026), for example, shows that ecotheology-based environmental management in Islamic boarding schools connects theological legitimacy, leadership, environmental education, habituation, and material practices such as reforestation and waste management.

This is also evident in the development of the eco-pesantren model, which is increasingly moving toward a holistic institutional approach. Widodo (2026) developed a framework that integrates Green Curriculum, Green Learning, Green Activity, and Green Management as the four pillars of pesantren-based sustainability education. This framework demonstrates that the values of *khalifah*, *mīzān*, and *amanah* can be operationalized not only in learning content but also in institutional activities and governance. Thus, ecotheology gains broader practical space: religious values are present in what is learned, how learning takes place, how the environment is managed, and how institutional members make ecological decisions.

However, ecological policies and programs do not automatically generate agency. A study by Yono & Devi (2025) showed that formal hygiene regulations in Islamic boarding schools (pesantren) have not always been consistently translated into everyday ecological behavior. The internalization process develops through shared life experiences, student interactions, collective responsibility, and assigning religious meaning to ecological practices. This finding matters for the IEEAF because it shows that institutions shape agency, not just control behavior. When students follow rules out of obligation or supervision, they primarily develop compliance. Conversely, when they can understand problems, consider alternatives, make decisions, collaborate, and see the consequences of their actions, space opens up for the development of ecological agency.

At this point, ecological affordances become important. Affordances refer to the opportunities the environment provides for action. In ecological education, ecological affordances can include spaces for waste management, school gardens, water conservation systems, energy management, decision-making forums, environmental projects, or community partnerships. What matters is not simply whether these facilities exist, but whether students can use them meaningfully, make decisions, propose changes, and take responsibility for the consequences. Research on climate agency shows that learning designs that use informal learning spaces and future scenarios can increase students' sense of agency and capacity to address complex environmental issues (Saikhu et al., 2025).

Thus, educational institutions can be positioned as living ecological laboratories, namely living spaces where ecological knowledge, moral values, social experiences, and environmental actions take place simultaneously. In schools, madrasas, and Islamic boarding schools, these laboratories can be realized through waste management, water conservation, reforestation, energy conservation, food management, use of open spaces, and community-based environmental projects. Recent studies on eco-pesantren management also show that integrating environmental policies, human resource development, curriculum, and participatory actions can expand the function of Islamic boarding schools from mere places of learning to centers of environmental education for the community.

Based on this synthesis, the IEEAF positions educational institutions as ecological layers that provide the structural conditions for agency formation. The relationship can be formulated as follows:



Figure 2: Fostering Ecological Agency in Education

This series emphasizes that ecological competence does not automatically translate into agency. Students may possess ecological knowledge and skills, but without participation, specific authority, institutional support, and opportunities to take action, these competencies are difficult to translate into real change. Therefore, transforming ecological education is not solely about individual change, but also about creating an institutional environment that enables students to become ecological subjects.

With this perspective, schools, madrasas, Islamic boarding schools, and other Islamic educational institutions serve not only as venues for teaching environmental awareness, but also as ecological learning ecosystems. The curriculum provides knowledge and values, pedagogy provides experience and reflection, and institutions provide space, resources, relationships, and opportunities for action. At this point, ecological agency develops: students' ability to understand ecological issues, reason, make decisions, collaborate, and contribute to environmental change. This shift reinforces the IEEAF's central thesis that Islamic-based ecological education needs to move from transmitting values to creating conditions that enable those values to be realized through meaningful ecological action.

4.5 Ecological Agency as an Expansion of the Meaning of Caliph

The research findings provide conceptual implications for the meaning of the caliphate in Islamic education. In many ecotheological studies, the caliphate on earth is understood primarily as a normative foundation that positions humans as the recipient of the mandate to maintain, manage, and preserve the balance of the earth. Recent studies on integrating the caliphate concept into Islamic education also show that the concept is increasingly used to strengthen ecological awareness, environmental ethics, and sustainable education (Rachman, 2026; Suyuti et al., 2026). However, this study proposes a conceptual expansion: the caliphate is not simply a human moral status or an obligation to protect nature, but also an orientation realized through the capacity to understand, consider, decide, and act on ecological issues.

This expansion matters because accepting a value does not automatically lead to the ability to act. Students may understand that humans are caliphs (*khalifah*) and that protecting the environment is part of their religious responsibility. Still, this understanding does not guarantee their ability to identify ecological issues, evaluate a course of action, collaborate with others, or influence the surrounding environment. Thus, an analytical distinction exists between ethical commitment and action capacity. The former relates to a morally correct orientation, while the latter relates to the ability to enact that orientation in concrete ecological situations.

Recent research is beginning to show the importance of shifting from normative understandings to educational practice. Mukhsin Mukhsin & Ilzam Hubby Dzikrillah Alfani (2025), place the *khalifah* fil ardh in the Islamic Religious Education curriculum through strengthening ecological materials, ecotheological learning approaches, and the formation of an environmentally conscious school culture. Meanwhile, Samad et al. (2026) show how the concept of *khalifah* fil ardh can be operationalized as a community-based pedagogical practice, so ecological responsibility does not remain a theological concept but appears in everyday educational experiences. These findings strengthen the argument that the meaning of *khalifah* becomes more substantive when translated into experience, knowledge, skills, and actions.

Within the Islamic Ecotheological Ecological Agency Framework (IEEAF), education mediates between *khalifah* values and ecological action. Theological values provide an orientation regarding why humans need to be responsible for the earth; pedagogy provides a process for understanding and reflecting on that responsibility; ecological experience provides a concrete context for testing understanding; ecological competence provides the capacity to read and respond to issues; and the institutional environment provides opportunities for students to act. Thus, the relationship is not linear and deterministic, but rather a mutually reinforcing process of transformation.

Conceptually, this relationship can be formulated as follows:

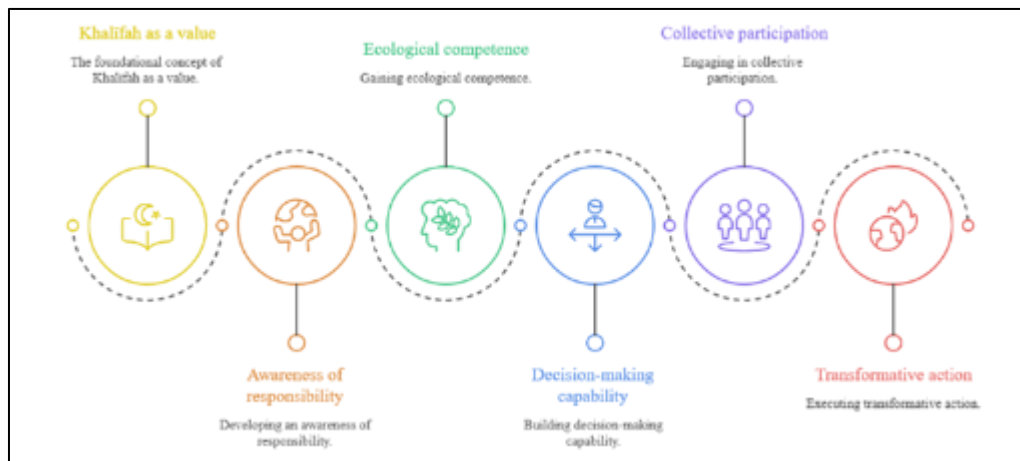


Figure 3: Relationship Between Khalifah and Ecological Agency

This formulation also emphasizes that the caliphate does not directly produce ecological agency. Theological values provide moral orientation and legitimacy, while agency develops as students acquire knowledge, experience, participation, and opportunities to make decisions. In this sense, education is not simply a means of internalizing values, but a process that transforms values into the capacity to act.

Studies on Islamic ecopedagogy strengthen this argument, showing that integrating *khalifah*, *amanah*, and *mizān* into learning experiences can connect the spiritual dimension with ecological awareness and action. Studies on the development of Islamic-based ecopedagogy modules, for example, show that project-based activities such as school gardens, organic waste management, and sustainability campaigns can help translate these values into pro-environmental actions. Similarly, studies on sustainable environmental management based on the concept of *khalifah* show that the values of *amanah*, 'adl, wasatiyyah, and ihsan can expand environmental education beyond mere knowledge to a framework of ecological responsibility that has a spiritual dimension.

From this perspective, ecological agency can be understood as the practical actualization of the responsibilities of the caliphate. This means that being a caliph means not only recognizing that humans have responsibilities towards the earth, but also having the ability and opportunity to carry out these responsibilities in real life. This actualization can take the form of individual actions, such as reducing water and energy waste, or collective actions such as managing waste, developing green spaces, carrying out conservation, developing environmental campaigns, or engaging in solving ecological problems in the community.

This interpretation also prevents the concept of caliph from being reduced to a mere moral slogan if caliphate is positioned solely as a normative message; education risks stopping at fostering awareness that preserving nature is an obligation. Conversely, when caliphate is linked to ecological agency, the educational question shifts to: do students have the capacity and space to carry out this responsibility? This question has pedagogical and institutional consequences because forming humans as caliphs requires not only instilling values, but also developing ecological literacy, critical thinking skills, decision-making, collaboration, and participation in concrete actions.

Thus, the IEEAF's conceptual contribution lies in its attempt to connect two areas often separated in the literature: ecotheology as a source of values and ecological education as a space for developing capacities for action. *Khalifah* provides the ontological and ethical basis for humanity's relationship with creation, while ecological agency explains how this responsibility can be realized as a practical capacity. This relationship can be summarized in the formula:

Within the overall framework of the IEEAF, these findings show that ecological transformation in Islamic education does not stop at the internalization of values. A more substantive transformation occurs when theological values translate into pedagogical experiences; these experiences shape ecological competence, and competence gains space to be

realized through individual and collective action. Thus, Islamic education can move from education about ecological responsibility to education for ecological action. This shift positions ecological agency as a practical extension of the meaning of *khalifah* in facing contemporary ecological challenges.

Based on this synthesis, this study proposes the Islamic Ecotheological Ecological Agency Framework (IEEAF) to explain how Islamic ecotheological values can be translated into ecological capacity through education. The framework consists of five interrelated dimensions:

4.5.1.1 Theological Grounding

The values of *tawhīd*, *khalifah*, *amanah*, *mīzān*, and *rahmah* provide a moral and spiritual basis for human relations with nature.

4.5.1.2 Ecological Meaning-Making

Students interpret ecological issues through an Islamic perspective, so they understand environmental issues not only as technical issues but also as ethical and moral issues.

4.5.1.3 Ecological Competence

Students translate values and meanings into knowledge, critical thinking skills, problem-solving, and decision-making abilities related to ecological issues.

4.5.1.4 Participatory Agency

Students have the opportunity to participate in ecological actions individually and collectively, including dialogue, collaboration, designing solutions, and making decisions.

4.5.1.5 Transformative Ecological Action

Agency evolves into change-oriented action through conservation practices, innovation, institutional culture change, or community involvement.

Conceptually, the relationship between these five dimensions can be formulated:



Figure 4: Cycle of Ecological Engagement

This framework expands on previous studies that have mapped the integration of ecotheology into curriculum, pedagogy, character, institutions, and conservation. Sapitri et al. (2025) emphasize the character dimension; (Hariyanto et al., 2024) identify the integration of teachings, institutions, internalization, and conservation; while other studies have begun to develop pedagogical and institutional models that link Islamic values with sustainable practices.

The novelty of the IEEAF lies in its positioning of ecological agency as a transformative outcome that connects theological, pedagogical, competence, participation, and action dimensions. Thus, the focus of analysis shifts from whether Islam has environmental teachings to a more operational question: how education transforms these theological resources into human capacities to understand, decide, participate, and act on ecological issues.

5 CONCLUSION

This study demonstrates that Islamic ecotheology can develop environmental education from awareness and ethics to ecological agency. The literature shows that the concepts of *tawhīd*, *khalifah*, *amanah*, *mizān*, and *rahmah* have been integrated into curricula, pedagogy, institutional culture, and conservation practices. However, research still focuses more on values, awareness, and behavior than on students' capacity to make decisions, participate, and drive ecological change. To address this gap, this study proposes the Islamic Ecotheological Ecological Agency Framework (IEEAF), which includes theological grounding, ecological meaning-making, ecological competence, participatory agency, and transformative ecological action. This framework positions education as a link between theological values and the capacity to act through the flow of theology, meaning, competence, agency, and transformation. Further development is needed to empirically test the IEEAF by developing indicators, measurement instruments, and longitudinal studies in various Islamic educational contexts.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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