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Tri-Axis Model of Eco-Theology Integration in Islamic Religious Education: A Case Study of a Pesantren-Based Islamic Junior High School

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ABSTRACT

Purpose of the study: This study analyzes how Islamic eco-theological values are integrated into the Islamic Religious Education (IRE) curriculum of an Islamic junior high school operating under a pesantren foundation, how these values are translated into instruction, habituation, and school culture, and which factors support or hinder the process. It then formulates a model that links these three layers.

Methodology: A qualitative single-case study was conducted at SMP Islam Plus El Mubarok Maguan, Blora, on 20–24 September 2026. Data were collected through three non-participant observations, semi-structured interviews with 12 informants, and a review of five types of curriculum documents. The data were analyzed using the interactive model of Miles, Huberman, and Saldaña and validated through source and technique triangulation and member checking.

Main Findings: Values were infused into the IRE curriculum and teaching modules unevenly: tawḥīd, mīzān, and khalīfah were anchored in standard content, whereas fiṭrah and amānah were only implicit. The values were translated through contextual, problem-based, and cross-subject project-based learning and were then sustained through water-saving congregational ablution and the role modeling of school leaders. According to the school, continuity at home remained weak. The habituation that had formed was still limited to individual hygiene behavior within the school environment and had not been shown to extend to consumption patterns or practices at home.

Novelty/Originality of this study: This study proposes the Tri-Axis Model (Model Tri-Poros), which links curricular infusion, transformative pedagogy, and an ecological habituation ecosystem. The model indicates an uneven distribution of values across curriculum documents, the embedding of values in ritual as a pathway to habituation, and a disconnect beyond the school. Because it derives from a single case and relies on self-reported data, the model is presented as a proposition to be tested in other contexts.

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1. INTRODUCTION

The global ecological crisis is now treated as a civilizational problem rather than a peripheral issue. A UNEP report shows that rising resource use over recent decades has become one of the main drivers of climate change, biodiversity loss, and pollution [1]. These data, however, do not explain why destructive practices persist. Several studies identify the way humans perceive and treat nature as the root of the problem and therefore position education, including Islamic education, as one arena in which ecological responsibility can be

cultivated [2]. The Qur'an itself attributes the damage that has appeared on land and sea to the deeds of human hands (Q.S. ar-Rūm/30: 41) [3]. From an Islamic perspective, environmental problems thus concern not only resource management but also faith and moral character.

In Indonesia, Islamic Religious Education (IRE) occupies a strategic position because it is taught at every level of primary and secondary education and engages directly with attitude formation. A study at a state junior high school with Adiwiyata status in Makassar reported that IRE teachers connected Qur'anic verses to environmental issues, applied project-based learning, and modeled environmental behavior, yet students' behavior outside school remained inconsistent [4]. A review of the IRE and Character Education (Budi Pekerti) curriculum found that environmental education within it emphasized the affective domain, so that teachers inserted environmental messages into relevant themes; the study recommended that Islamic eco-theology be incorporated in a more structured way [5]. Amid the problems of plastic waste and consumption patterns that are close to students' daily lives, IRE is expected not only to teach ritual obligations but also to show that piety has consequences for nature.

Theologically, one systematic framework for reading the relationship between Islam and the environment was formulated by Khalid [6]. He sets out four interrelated principles: tawḥīd, the unity of creation under the Creator; fiṭrah, the original order of creation; mīzān, the balance established by God; and khalīfah, the mandate to care for the earth. Khalid also reads the ecological crisis as the product of a modern worldview that separates humans from the sacred order of creation. More recent studies of Islamic environmental ethics continue to treat tawḥīd as the basis of the human relationship with nature [7]. Research on Muslim environmentalisms shows that this commitment has developed into an environmental ethic that emphasizes environmental justice and the rights of nature [8], while in Javanese pesantren, religious teachings and da'wah efforts have been found to sustain sustainability practices [9]. Rakhmat [10] argues that the human position as khalīfah is not a license for total domination but a responsibility to be fulfilled. Hasanah and Addzaky [11] position tawḥīd, khalīfah, and mīzān as the ontological foundations of twenty-first-century Islamic education, with implications for curriculum, pedagogy, and identity formation.

This study adopts Khalid's four principles as its analytical lens. Amānah is added as a supporting concept because it reinforces the dimension of moral accountability across the four principles and is commonly used by educators in the field. The five values subsequently serve as deductive codes in the analysis, with the caveat that amānah is not a principle formulated by Khalid.

One further framework is used as an interpretive tool for the findings rather than as the main framework. Bourdieu's concept of habitus [12], that is, dispositions to act that are formed through repeated practice within particular structures, is used to read students' shift from compliance to habit.

Empirical studies on the integration of eco-theology in Islamic education reveal three tendencies. First, some studies emphasize direct experience of nature and an orientation toward worship. Ratnasari et al. [13] showed how Qur'anic values are brought to life through nature-based activities at Sekolah Alam Yogyakarta, and Azhari et al. [14] examined Green Islamic Education at SMPIT Sahabat Alam Pelabuhanratu, which frames environmental care as worship and spiritual responsibility. Second, along the curriculum pathway, Emawati et al. [15] formulated a model integrating IRE with environmental education at a state junior high school, whereas Mustofa et al. [16] found that the integration of ecotheological values into the IRE curriculum in Karawang secondary schools proceeded through the strengthening of spiritual awareness, ecological ethics in learning and school activities, and concrete environmental action, constrained by limited resources, teacher training, and policy support. Third, more recent case studies point toward school culture. Zahro et al. [17] found that ecotheological pedagogy at an Islamic elementary school in Jember operated through ecotheological values, reflective learning, teacher role modeling, ecological habituation, and a collaborative school culture. Faradilah et al. [18] traced the implementation of ecotheology at MTsN 3 Malang from the madrasa's operational curriculum to habituation and reported that students' habits carried over to the home, although sustainability was constrained by assessment time and large student numbers. Taufikin [19] studied three Islamic elementary schools in Demak and reported an improvement in students' understanding of the relationship between Islamic teachings and ecological responsibility.

Other studies are set in pesantren. Earlier research has documented curricular and pedagogical innovation in the Green Pesantren Initiative [20], an eco-pesantren model for environmentally friendly behavior [21], the integration of Islamic values with environmental ethics [22], and the relationship between santri religiosity and environmental awareness in eco-pesantren [23]. However, these studies were generally conducted within the pesantren itself rather than in a formal junior high school operating under a pesantren foundation. The closest study the authors found is that of Rohmatulloh et al. [24], conducted at an Islamic secondary school integrated with a pesantren system, which developed the integration of energy-saving values across science and religion as a framework for planned curriculum and instruction. That study focused on teaching energy-saving values through integrative science–religion learning, so the distribution of eco-theological values across IRE curriculum documents, and its relationship to habituation, appears not to have been its primary focus.

At the level of synthesis, Sapitri et al. [25] reviewed 33 studies and mapped three pathways for integrating ecotheology into IRE: curriculum strengthening, contextual-reflective pedagogy, and authentic assessment. The review also noted the absence of standardized achievement indicators and validated evaluation instruments and emphasized the need for a more structured pedagogical framework. Several conceptual frameworks have been proposed. Qudsiyah et al. [26] formulated a model integrating a curriculum of love and environmental theology at the primary level through a literature study, while Rohman [27] developed a raḥmah-based education framework comprising theological, pedagogical, and ecological dimensions on the basis of a thematic interpretation of educational verses. Rohman noted that Islamic ecology scholarship tends to remain a normative ethical system with limited attention to the process of internalizing values through education, and he suggested that his framework be tested empirically in schools and pesantren.

Read against one another, these studies leave three limitations that bear directly on the present inquiry. Most of them establish that eco-theological values are present and describe the strategies schools use, but they say little about why some values move from curriculum to habit while others remain at the level of speech [16], [17]. The evidence on life beyond school is also divided: habits were reported to reach the home at a state madrasa [18], whereas inconsistent behavior outside school was reported at an Adiwiyata junior high school [4] and uneven family and community support at an Islamic elementary school [17], and none of these studies specifies the conditions under which carry-over occurs. Claims about outcomes remain thin, since one case study reports improved understanding [19] and the systematic review notes the absence of standardized achievement indicators and validated instruments [25], which makes it hard to tell compliance from habit. The conceptual models proposed so far address these weaknesses only partly, because one was derived from a literature study [26] and the other from a thematic interpretation of verses, with its author calling for empirical testing in schools and pesantren [27]. What is still missing is an account built from field evidence that follows a value across curriculum documents, classroom instruction, and daily practice at the same site.

Three gaps can be identified from this map. First, there is an empirical-contextual gap. Existing studies have mostly been conducted in nature schools, elementary schools, state madrasas, state junior high schools with Adiwiyata status [4], or pesantren. To the authors' knowledge, Islamic junior high schools operating under a pesantren foundation, where formal IRE meets the fiqh and adab traditions of the pesantren, have rarely been examined with a focus on IRE curriculum documents and habituation. Second, there is a theoretical gap in how eco-theology is treated. Islamic ecology scholarship tends to remain a normative ethical system with limited attention to the internalization of values [27], while the available empirical studies mostly demonstrate the presence of values and strategies for integrating them (e.g., [16], [17]). Consequently, explanations of why some values become habits more quickly than others are scarce. Third, there is a model-related and practical gap concerning the relationships among layers. Available frameworks are generally conceptual or stop at curriculum, pedagogy, and assessment [25], so the pathway from theological values to curricular infusion, pedagogy, ecological habituation, and ecological behavior has not been explained explicitly, including the uneven distribution of values across curriculum documents and its relationship to habituation. This study seeks to address these three gaps and offers the Tri-Axis Model of Eco-Theology Integration as a conceptual contribution with the status of a proposition.

The Tri-Axis Model is offered against this background, and its distinctive contribution is clearest when set beside the closest existing frameworks. The pathway map from the systematic review organizes integration around curriculum strengthening, contextual-reflective pedagogy, and authentic assessment [25], so habituation and school culture appear there as outcomes rather than as a pathway that needs its own explanation. The raḥmah-based framework links theological, pedagogical, and ecological dimensions but rests on a thematic interpretation of verses and has not been tested in schools [27], and the curriculum-of-love model was built from a literature study at the primary level [26]. The case studies in Karawang, Jember, and Malang identify elements such as spiritual awareness, role modeling, and habituation [16], [17], [18] but, as far as the authors could determine, do not specify how a value passes from one layer to the next. The proposed model differs in three respects: it treats the curriculum document layer as an axis in its own right and traces where values are and are not recorded; it treats habituation as an ecosystem with its own mechanism, namely embedding in ritual together with role modeling; and it states the transfer pattern between axes, including the boundary where transfer stops. Its principal contribution therefore lies not merely in bringing curricular infusion, transformative pedagogy, and ecological habituation together, but in explaining their relationships through empirically identified patterns of transfer, partial translation, and discontinuity across the three axes. This process-oriented perspective makes it possible to examine not only whether eco-theological values are present, but also how, where, and under what conditions they are translated into practice and potentially sustained as ecological habits. Because it is derived from a single case at an Islamic junior high school under a pesantren foundation, it is advanced as a proposition for testing and not as a validated framework.

The relationship among the theoretical frameworks, the research gaps, and the model is summarized in Table 1. Khalid's four principles, with amānah as a supporting concept, supply the content that is traced and respond to the theoretical gap, because they make it possible to ask which parts of an integrated worldview

survive translation into school practice and which are narrowed. Bourdieu's habitus is used only at the habituation end of the analysis, to read whether repeated practice has formed dispositions that outlast the school's supervision. A third, more local distinction between theme insertion and integration around real problems is introduced in Section 3.8, where documents are compared with classroom practice. Together, these theoretical lenses perform complementary analytical functions: Khalid's principles identify the eco-theological content to be traced across educational settings, while Bourdieu's concept of habitus helps interpret whether repeated practices become durable dispositions. The research gaps determine the empirical relationships that require investigation, and the research questions guide the examination of these relationships. The Tri-Axis Model is then formulated from the observed patterns of value translation, habituation, and discontinuity across curriculum documents, instructional practices, and school culture, rather than being imposed on the data as a predetermined framework.

Table 1. Linkage among research gaps, theoretical lenses, research questions, and model components

Research Gap	Theoretical Lens	RQ	Component of the Tri-Axis Model
Empirical-contextual: Islamic junior high schools under a pesantren foundation have rarely been examined with a focus on curriculum documents and habituation	Khalid's principles (with *amānah*) used as deductive codes across documents, instruction, and habituation	RQ1, RQ2	Curricular infusion axis: where values are, and are not, recorded in the KSP, CP/TP, and IRE modules
Theoretical: eco-theology is treated as a normative ethical system, with scarce explanation of internalization	Khalid's principles read as a single worldview whose parts may be translated unevenly	RQ1, RQ3	Transformative pedagogy axis: translation of values into concrete objects and situations across IRE, science, and social studies
Model-related: relationships among the layers, from values to curriculum, pedagogy, and habituation, are not explained	Bourdieu's habitus, used as an interpretive tool for the shift from compliance to habit	RQ3, RQ4	Ecological habituation ecosystem axis, the transfer patterns between axes, and the school boundary

Based on these gaps, this study aims to analyze how Islamic eco-theological values are integrated into the IRE curriculum in an Islamic junior high school operating under a pesantren foundation, how these values are translated into instruction, habituation, and school culture, and which factors support or hinder the process, and then to formulate a model that connects these layers. This aim is elaborated into the following four research questions (RQs). RQ1: How do educators and students interpret Islamic eco-theological values (tawḥīd, fiṭrah, mīzān, khalīfah, and amānah) at SMP Islam Plus El Mubarok Maguan?, RQ2: How are these values distributed across IRE curriculum documents and modules?, RQ3: How are these values translated into instruction and sustained through habituation and school culture?, RQ4: Which factors support and hinder this process, and what model can be formulated from the patterns identified?.

2. RESEARCH METHOD

2.1. Research Design and Procedure

This study employed a qualitative approach with a single-case study design. This design was chosen because the integration of eco-theology is a contemporary phenomenon that cannot be separated from the school context in which it occurs and therefore needs to be examined in depth using multiple sources of evidence [28]. A single-case study is not intended for statistical generalization; its aim is analytic generalization, namely testing and refining theoretical propositions [28]. The findings are therefore read as propositions whose transferability to other contexts depends on the similarity of contextual characteristics, as discussed in Section 3.13. The case was bounded to the process of integrating eco-theological values into IRE curriculum and instruction, together with its continuation in habituation and school culture.

The research proceeded in seven stages, summarized in Figure 1. The school was selected purposively and access was arranged with the school (stage 1), after which the observation guide, interview guide, and

document review format were prepared (stage 2). Data were then collected from 20 to 24 September 2026 through document review, interviews, and observations (stage 3). Interviews were transcribed verbatim, and Javanese quotations were translated into Indonesian, checked by a peer reviewer, and rendered into English (stage 4). Analysis followed the interactive model described in Section 2.5 (stage 5), and triangulation and member checking were applied to interim results (stage 6). Stages 5 and 6 overlapped, since interim results were returned to informants within the data collection schedule. The patterns found across layers were finally synthesized into the Tri-Axis Model (stage 7).

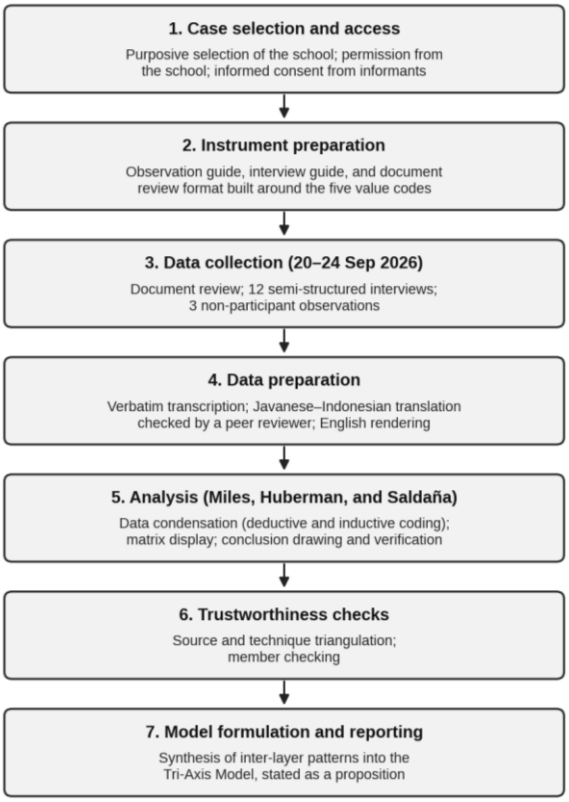


Figure 1. Research procedure

2.2. Research Setting and Informants

The study was conducted at SMP Islam Plus El Mubarok Maguan, Blora Regency, Indonesia, a junior high school under a pesantren foundation. The school was purposively selected because environmental sustainability is incorporated into its school-level curriculum (KSP), vision, and mission, supported by a strong pesantren culture. Data were collected on 20–24 September 2026. Although the short period limited the observation of behavioral change, the researcher's position as a pesantren resident facilitated rapport and natural observation. To minimize potential bias, source and technique triangulation and member checking were conducted.

Twelve informants were purposively selected based on their involvement in curriculum planning, instruction, and environmental habituation: the principal, vice principal for curriculum, IRE teacher, science teacher, social studies teacher, environmental program coordinator, and six ninth-grade students (three male and three female). Student selection was conducted by the principal based on one year of participation in the environmental program, potentially favoring active or compliant students. Therefore, student statements were treated as self-reports rather than representative views. The science and social studies teachers were interviewed together, and their responses were treated as a single data source during triangulation.

Table 2 lists the twelve informants, the basis on which each was selected, the kind of data each was expected to provide, and the date of each interview. The school leaders were included for the policy and curriculum-planning layer, the teachers and the program coordinator for instruction and habituation, and the students for how the values were received in daily habits.

Table 2. Research informants

Code	Position/Role	Basis of Selection	Relevance to the Data	Interview Date

Code	Position/Role	Basis of Selection	Relevance to the Data	Interview Date
KS-01	Principal	School policy holder and person responsible for the institution's vision and mission	Environmental policy in the KSP, interpretations of *fiṭrah* and *khalīfah*, role modeling, and leadership	20 September 2026
WK-01	Vice principal for curriculum affairs	Involved in drafting the KSP and mapping learning outcomes	Infusion of values into the KSP and learning outcomes (CP), co-curricular activities, and discontinuity of habituation	20 September 2026
GPAI-01	IRE teacher	Teacher implementing IRE instruction who integrates eco-theological values	Interpretation of values, design and implementation of contextual teaching and learning/problem-based learning (CTL/PBL), control of water use during ablution, teaching materials, and pesantren culture	23 September 2026
GIPA-01	Science teacher	Involved in cross-subject co-curricular activities	Integration of values into science content, collaboration with the IRE teacher, student responses, and coordination constraints	23 September 2026 (group session with GIPS-01)
GIPS-01	Social studies teacher	Involved in cross-subject co-curricular activities	Social perspectives on human behavior and the environment, collaboration with the IRE teacher, and coordination constraints	23 September 2026 (group session with GIPA-01)
PPL-01	Environmental program coordinator	Person responsible for designing and supervising the school's environmental program	Range of programs, value foundations, habituation and supervision systems, attitude assessment, and sustainability constraints	23 September 2026
PD-01 to PD-06	Ninth-grade students (3 male, 3 female)	Ninth-grade students selected by the principal who had participated in the environmental program for one year	Acceptance of values and self-reports on ecological habits	24 September 2026

Note: informant identities are anonymized through codes.

Taken together, the informants cover the three layers examined in this study: policy and curriculum planning (KS-01, WK-01), instruction (GPAI-01, GIPA-01, GIPS-01), and habituation (PPL-01 and the students). Several roles are held by a single person, and the students were selected by the principal, so the table also shows where the evidence is thinnest, a point taken up in Section 3.13.

2.3. Data Sources and Collection Techniques

Data were collected through three techniques. First, non-participant observation was conducted three times, covering (1) an IRE class on 23 September for 30 minutes, (2) ablution practice before the congregational Zuhr and Asr prayers on 23–24 September for 45 minutes, and (3) the condition of facilities and environmental cleanliness at the school on 23 September for 30 minutes. The results were recorded in field notes. Second, semi-structured interviews were conducted. Each interview lasted approximately 30 to 45 minutes, was audio-recorded with the informant's permission, was conducted in Indonesian and Javanese, and was transcribed verbatim. Javanese quotations were translated into Indonesian by the researcher, and the accuracy of the translations was checked by a peer reviewer; all interview excerpts were subsequently rendered into English for this article. The Arabic texts and English translations of the Qur'anic verses and hadiths cited in this article are presented in the reference list; the translations are the authors' own. Third, document analysis was conducted on the KSP for the 2026/2027 academic year, the Annual Program, the Semester Program, the Grade IX IRE Teaching Module, and the school regulations. The terms KSP and Pancasila Student Profile Strengthening

Project (Projek Penguatan Profil Pelajar Pancasila, P5) follow the nomenclature used in the school's documents, even though a 2025 national regulation replaced the Pancasila Student Profile with the Graduate Profile and broadened the forms of co-curricular activities [29].

2.4. Research Instruments

Three instruments guided data collection, and all of them were derived from the five values described in the Introduction (Table 3). The observation guide listed indicators of the practice of each value in the settings observed. The interview guide was developed from Khalid's framework and contained core questions on the interpretation of values, strategies for integration into the curriculum and instruction, forms of habituation, and supporting and hindering factors; it was reviewed by the principal researcher before use. The document review format mapped the occurrence of each value across the five types of curriculum documents.

Table 3. Research instruments, aspects examined, indicators, and data sources

Instrument	Aspects Examined	Example Indicators	Data Source and Setting	RQ
Observation guide	Practice of each value in instruction, in the ablution routine, and in school facilities	Teacher links lesson content to water and waste problems; tap control and reminders during ablution; availability of trash bins and cleanliness of facilities	Non-participant observation of an IRE class (30 min), ablution before Zuhr and Asr (45 min), and school facilities (30 min); field notes	RQ3, RQ4
Interview guide	Interpretation of the five values; integration strategies in curriculum and instruction; forms of habituation; supporting and hindering factors	Meaning given to *tawḥīd*, *fiṭrah*, *mīzān*, *khalīfah*, and *amānah*; examples of translation into lessons and routines; accounts of supervision, role modeling, and constraints	Semi-structured interviews with 12 informants (Table 2); audio recordings and verbatim transcripts	RQ1, RQ3, RQ4
Document review format	Occurrence of each value in curriculum documents	Explicit or implicit mention of each value; link to learning outcomes, learning objectives, and module content	KSP 2026/2027, Annual Program, Semester Program, Grade IX IRE Teaching Module, and school regulations	RQ2

Source: processed from the research instruments.

The three instruments complement one another. A value mentioned in an interview can be checked against what was observed and what the documents record, which is the basis of the technique triangulation described in Section 2.6.

2.5. Data Analysis

Data were analyzed using the interactive model of Miles et al. [30], comprising data condensation, data display, and conclusion drawing and verification. At the condensation stage, transcripts, field notes, and document review results were coded manually by the researcher alone, without an independent coder, which is acknowledged as a limitation. Coding proceeded in two directions. Deductive coding used five value codes, namely tawḥīd, fiṭrah, mīzān, khalīfah, and amānah, while inductive coding captured findings outside this framework, such as embedding in ritual and sungkan (deferential reluctance) toward figures. At the display stage, the codes were arranged in a matrix that crossed each value with its three layers of occurrence: curriculum documents, instructional practice, and habituation and school culture (Table 5). At the conclusion-drawing stage, the pattern of relationships among layers in the matrix was read to formulate patterns of value transfer, which were then synthesized into the Tri-Axis Model.

2.6. Trustworthiness and Research Ethics

Data trustworthiness was tested through source and technique triangulation [28], [30]. Source triangulation was conducted by comparing information from school leaders, teachers, the environmental program coordinator, and students, while technique triangulation involved cross-checking interviews with observations

and documents. For example, water conservation during ablution was confirmed through interviews with GPAI-01, GIPA-01/GIPS-01, and PPL-01 and observations at the ablution area. However, information about discontinuity of environmental habits outside school came only from school-based informants, as parents' accounts and direct evidence of students' home practices were unavailable. Member checking was conducted with each informant to verify relevant interview and observation findings according to the schedule in Table 2. Informed consent was obtained from all adult informants before interviews. For the six ninth-grade students, school permission and student assent were obtained; however, separate parental or guardian consent was not requested because the students lived in the pesantren dormitory. As residence does not replace guardian consent where required, this is acknowledged as an ethical limitation. The interviews focused on school environmental practices rather than sensitive personal matters, minimizing potential risks to participants.

Because the school and some informants' positions could make individuals identifiable, the school's name and quotations were included with formal permission from the school and informants. Each quotation is identified by informant code, data collection technique, and date, as detailed in Table 2.

3. RESULTS AND DISCUSSION

This section is organized so that evidence, interpretation, and comparison with the literature are kept apart. Section 3.1 states the criteria used to identify and analyze explicit and implicit values. Sections 3.2 to 3.7 report the empirical findings only, in the order of the research questions: the interpretation of values (RQ1), the distribution of values in documents (RQ2), instruction and habituation (RQ3), and supporting and hindering factors (RQ4); Section 3.7 consolidates the evidence for each of the five values. Sections 3.8 to 3.10 interpret these findings through Khalid's framework, Bourdieu's habitus, and curriculum-integration theory, and derive the Tri-Axis Model from them. Section 3.11 compares the findings critically with previous studies, Section 3.12 sets out theoretical and practical implications, and Section 3.13 states the limitations and the scope of the claims. Statements that are the authors' interpretation are labeled as such in Sections 3.8 to 3.13 and are not used as evidence in Sections 3.2 to 3.7.

3.1. Criteria for Identifying and Analyzing Explicit and Implicit Values

The five values (tawḥīd, fiṭrah, mīzān, khalīfah, amānah) were traced across three data types using one set of rules, so that a value counted as "present" in the same way in every source. The rules are summarized in Table 4.

Table 4. Operational criteria for coding the five values

Criterion	Curriculum documents	Interviews	Observations
Unit of analysis	A passage that states a policy, learning outcome (CP), learning objective (TP), module indicator, or school rule [AUTHOR TO CONFIRM: passage-level or sentence-level]	An informant statement that answers one interview question or develops one idea	A field-note episode of one setting (class, ablution, facilities)
Explicit	The passage names the value (e.g., *khalīfah fī al-arḍ*), or attaches it to a standard-content element that the document itself presents as its basis (*āyāt kauniyyah* for *tawḥīd*; *ṭahārah* and moderate water use for *mīzān*)	The informant names the value or defines it in their own words	The practice is accompanied by a spoken or written appeal that names the value or its prohibition (e.g., *isrāf*)
Implicit	The value is not named and not attached to a standard-content element, but a stated policy or objective can be read as resting on it (e.g., the cleanliness policy read as resting on *fiṭrah*)	The informant describes the underlying idea without the term	A routine embodies the value without any appeal that names it

Criterion	Curriculum documents	Interviews	Observations
Coding rule	Deductive code assigned only when the passage meets the explicit or implicit definition; implicit codes are always flagged as the researchers' inference	Deductive code assigned by statement; inductive codes (e.g., embedding in ritual, *sungkan*) added for content outside the framework	Deductive code assigned by episode; cross-checked against interview and document codes
Recording	Document review format (Table 3), mapping each value to each of the five document types	Transcripts coded manually	Field notes coded manually

Three further rules governed the analysis. First, an implicit reading was recorded as a finding only with the label "researchers' interpretation" and was never counted as documentary evidence for a value. Second, each value was then entered in a matrix crossing it with three layers (documents, instruction, habituation and school culture; Section 2.5), and the number and type of independent sources behind each cell was recorded. Third, the strength of evidence for each value was graded from that record: triangulated (two or more techniques agree), multi-source (several informants but one technique), or preliminary (two or fewer sources and one technique). The grade is used in Section 3.7. Coding was done by one researcher without an independent coder, so the grades describe the breadth of the evidence and not inter-coder agreement.

3.2. Empirical Findings: Interpretation of Values by Educators and Students (RQ1)

All five values emerged in the interviews, although the supporting evidence varied. The IRE teacher linked tawḥīd to protecting God's creation, while the principal described fiṭrah as nature's original purity. The IRE teacher associated khalīfah and amānah with managing and protecting the earth as a trust. Mīzān was linked to balanced water use during ablution, while a student connected littering with damage to God's creation (PD-01, interview, 24 September 2026). Evidence for mīzān, fiṭrah, and amānah was limited, making these findings preliminary. Examples of fiṭrah focused primarily on cleanliness, including maintaining clean surroundings, using bins, and picking up litter. The reported excerpts did not establish broader interpretations involving consumption patterns or biodiversity.

3.3. Empirical Findings: Values in Curriculum Documents (RQ2)

The vision and mission and the KSP state environmental sustainability, using the concept of khalīfah fī al-arḍ, the prohibition of fasād, and the principle of cleanliness. Integration is not carried out through a separate subject but through infusion into the IRE Learning Outcomes (CP) and Learning Objectives (TP). The vice principal for curriculum affairs reported that he and the IRE teacher mapped the CP relevant for infusion without altering the structure of the national curriculum (WK-01, interview, 20 September 2026). The environmental program coordinator reported that the program was designed from the school's development direction, which positions environmental sustainability and ecological character as a characteristic of the school (PPL-01, interview, 23 September 2026).

In the Annual Program, the Semester Program, and the Teaching Module, infusion appeared in three elements. The Qur'an and Hadith element contains āyāt kauniyyah, such as Q.S. Āli ʿImrān/3: 190–191 [35] and Q.S. ar-Rūm/30: 41 [3], linked to environmental damage caused by human actions. The Fiqh element contains ṭahārah: the criteria for pure water, the prohibition of polluting water sources, and moderate use of water in ablution and bathing. The Akhlāq element contains ethics toward nature. The Phase D CP for Islamic Religious Education and Character Education [36], amended in 2026 [37], expect students to understand the importance of preserving nature and the environment as part of Islamic teachings. The module indicators require students to analyze Qur'anic and Hadith evidence on the responsibility to protect the earth, to habituate personal and environmental cleanliness, and to design concrete actions against pollution around the school and their homes.

By the criteria in Table 4, tawḥīd, mīzān, and khalīfah were explicit, because each attached to standard content (āyāt kauniyyah; ṭahārah and moderate water use; khalīfah fī al-arḍ in the vision and mission, the KSP, and the Akhlāq element). Fiṭrah and amānah were not recorded as terms in any of the five document types and were not attached to a standard-content element. They were coded as implicit: the cleanliness policy and the module indicators on habituating cleanliness were read as resting on fiṭrah, and the indicators on protecting the earth and avoiding fasād fī al-arḍ were read as resting on amānah. This is the researchers' reading; no document states it. [EVIDENCE NEEDED: one short verbatim excerpt from the KSP or Teaching Module for each of the two implicit values, and one for each explicit value, if the school permits quotation.]

3.4. Empirical Findings: Contextual, Problem-Based, and Project-Based Learning (RQ3)

Observation of the IRE lesson on ṭahārah (23 September 2026) showed contextual teaching and learning (CTL) and problem-based learning (PBL): the teacher took students to the ablution area and the school pond and led a discussion of the clean-water crisis and its relation to the validity of worship. The teacher explained:

"I show them what happens when water is wasted excessively. So religious content immediately meets the reality of their everyday environment." (GPAI-01, interview, 23 September 2026)

In co-curricular time, the school ran a P5 on the theme of Sustainable Lifestyle, with waste sorting, composting, and greening (WK-01, interview, 20 September 2026). One student reported a change in habit after the teacher linked waste management to the human position as khalīfah:

"Before, after buying snacks I just threw the plastic away. But after the teacher explained that humans are the leaders of the earth who must look after the environment, now I put the plastic in my pocket until I find a trash can." (PD-02, interview, 24 September 2026)

This statement is a self-report. The science and social studies teachers connected waste-related content to cleanliness and human responsibility, and linked water use in ablution to the prohibition of isrāf (GIPA-01/GIPS-01, group interview, 23 September 2026). They described a division of roles in co-curricular activities, including eco-printing:

"The IRE teacher mostly provides the Islamic value foundation, while the science teacher helps from the scientific side and the social studies teacher can offer a social perspective on human behavior and the environment." (GIPA-01/GIPS-01, group interview, 23 September 2026)

The evidence for cross-subject collaboration comes from one group session and was not observed directly.

3.5. Empirical Findings: Ecological Habituation and School Culture (RQ3)

The most consistent habituation was found in ablution before the congregational Zuhr and Asr prayers. Observation at the ablution area (23 September 2026) found stickers with religiously framed appeals and instructions from the duty teacher and the IRE teacher not to open the tap too wide. The IRE teacher stated:

"... wasting water is the sin of isrāf. So we usually monitor the children during ablution for the Zuhr and Asr congregational prayers. Turn the tap down, use only as much water as you need." (GPAI-01, interview, 23 September 2026)

Other habituation consisted of the Lihat Sampah Ambil (LISA; "See Litter, Pick It Up") program, classroom cleaning duty, and trash bins in front of classrooms, in the yard, and at the ablution area. A student described a change in motivation:

"In the beginning I did it because I was afraid of being reprimanded by the teacher, but now I'm used to it because we have been taught that cleanliness is part of faith." (PD-03, interview, 24 September 2026)

The program coordinator reported the same sequence for some students, and the science teacher, the social studies teacher, and the coordinator reported students reminding peers for religious reasons (PPL-01, interview, 23 September 2026; GIPA-01/GIPS-01, group interview, 23 September 2026). Supervision was carried out through daily observation and reports from the teacher on duty, and each reprimand was accompanied by an explanation. In the greening activity, the IRE teacher linked tree planting to amānah (PPL-01, interview, 23 September 2026). Ecological attitudes had begun to be linked to attitude assessment, while a structured observation instrument was still under development (PPL-01, interview, 23 September 2026). The principal reported that when the kiai or the principal picks up litter in the yard, students feel sungkan and join in (KS-01, interview, 20 September 2026). No evidence of students questioning consumption patterns was found, and no data on practices at home were collected.

3.6. Empirical Findings: Supporting and Hindering Factors (RQ4)

Three supporting factors were named: leadership commitment, pesantren culture, and the involvement of the whole school community (GIPA-01/GIPS-01, group interview, 23 September 2026). The principal said:

"Kepemimpinan iku kunci. Yen kepala sekolahe ora duwe komitmen marang lingkungan, program sebagus apa wae ing draf KSP bakal mandheg dadi kertas tok." (Leadership is the key. If the principal has no commitment to the environment, however good a program in the KSP draft may be, it will end up as mere paper.) (KS-01, interview, 20 September 2026)

The IRE teacher reported that students familiar with fiqh maxims and classical texts accepted environmental ideas readily when these were delivered through cleanliness and amānah (GPAI-01, interview, 23 September 2026).

Two hindering factors were reported. The first was a gap in teaching tools:

"The special chapter on environmental ethics is very minimal and theoretical. So we have to feel our way on our own to find a combination of verses and modern environmental issues." (GPAI-01, interview, 23 September 2026)

The science teacher, the social studies teacher, and the program coordinator confirmed the limited material and added constraints of cross-subject coordination and time (GIPA-01/GIPS-01, group interview, 23 September 2026; PPL-01, interview, 23 September 2026). The second was discontinuity outside school: the vice principal said that community littering habits often erode the habits built at school (WK-01, interview, 20 September 2026), and the science teacher, the social studies teacher, and the coordinator gave similar accounts. All accounts of the home came from the school side; parents and students were not asked about home practice. The school planned to strengthen communication with parents, but this was not yet under way during the study (PPL-01, interview, 23 September 2026).

3.7. Empirical Findings: Consolidated Evidence for the Five Values

Table 5 consolidates, for each value, where it appeared, whether it was explicit or implicit under the criteria of Table 4, the strongest excerpt or document element, and the grade of evidence.

Table 5. Evidence for the five eco-theological values

Value	Documents (status)	Instruction	Habituation / culture	Key excerpt or document element	Sources	Evidence grade
Tawḥīd	Explicit: Qur'an and Hadith element, *āyāt kauniyyah* (Q.S. 3: 190–191 [35]; 30: 41 [3])	Protecting creation positioned as evidence of faith	Keeping things clean, saving water and electricity, not damaging facilities	"the proof of our faith is to help protect His creation" (GPAI-01)	1 interview; observation; module documents	Triangulated, but a single interview voice
Fiṭrah	Implicit (researchers' inference): foundation of the cleanliness policy; not named	Nature introduced as creation originally clean	Trash bins at strategic points; LISA program	"Alam iki asline suci lan resik..." (KS-01); PD-01 on littering	2 interviews; observation	Preliminary
Khalīfah	Explicit: vision and mission, KSP (*khalīfah fī al-arḍ*), *Akhlāq* element	Humans as managers and guardians (Q.S. 2: 30 [39]; 11: 61 [40])	Not littering; cross-subject co-curricular activities	"tugase mengelola lan menjaga, dudu ngrusak..." (GPAI-01); PD-02	5 interviews; documents	Triangulated (interview and documents)
Mīzān	Explicit: Fiqh element, *ṭahārah* and moderate water use	CTL/PBL at ablution area and pond; prohibition of *isrāf*, also in science content	Tap control and reminder stickers during congregational ablution	"Turn the tap down, use only as much water as you need" (GPAI-01); observation 23 September	3 interviews; observation; module documents	Triangulated; most varied sources (observation, documents, three interviews)
Amānah	Implicit (researchers' inference): not named	The earth as a trust to be accounted for	Greening linked to *amānah*	"Bumi lan seisinya iki titipan" (GPAI-01); PPL-01	2 interviews	Preliminary

Two empirical regularities follow from Table 5 and are stated without interpretation. First, the three values coded as explicit have documentary evidence, whereas the two coded as implicit have none and rest on

two interview sources each (with observation of objects such as bins for fiṭrah). Second, mīzān is the only value supported at once by observation, documents, and more than one interview source.

3.8. Theoretical Interpretation: What the Findings Mean

Interpretation of the values. Read through Khalid's framework [6], the five values did not travel together. Khalīfah and mīzān appear the most readily translated into action, since they speak of roles and limits, which can be realized in everyday behavior. Tawḥīd appears to work at another layer: it does not command a particular act but supplies a reason, so that picking up litter acquires the weight of acknowledging the Creator. Fiṭrah, which in Khalid's framework refers to the original order of creation (cf. Q.S. ar-Rūm/30: 30 [33]), was narrowed to cleanliness. The narrowing is understandable, since cleanliness is the entry point closest to students' experience and has a strong footing in the fiqh tradition; the school's frequently used phrase al-naẓāfatu mina al-īmān is better treated as an adage, since the authentic wording closest in meaning is al-ṭuhūr shaṭr al-īmān, "purification is half of faith" (narrated by Muslim, no. 223 [34]). The narrowing has a consequence that is an inference and not an observed result: if students learn that damaging fiṭrah means making things dirty, less visible damage to the order of creation, such as excessive consumption or loss of biodiversity, may fall outside what they treat as a religious concern. In Khalid's framework the four principles form one worldview in which each supports the others. In this case that worldview appears to have come apart in practice, with tawḥīd supplying reasons, khalīfah and mīzān supplying role and limit, and fiṭrah reduced to cleanliness. The reading of the ecological crisis as a problem of the modern worldview was not apparent in the data, so the framework's critical force appears reduced to an ethic of individual behavior that fits the grammar of fiqh. This is a proposition from one case.

Why some values travel further. The pattern in Sections 3.3 to 3.7 can be read as follows: a value moves from documents to habits to the extent that it finds an entry point in standard content and in a ritual already alive in the school. Mīzān has such an entry point twice, in ṭahārah and in congregational ablution; fiṭrah and amānah have neither. The uneven distribution in documents therefore appears to reflect the map of available content and ritual, not the map of values to be instilled. The data contain no comparison with a school lacking such rituals, so this is a proposition to be tested. The transfer from document to habit can be described in three analytical steps: translation (anchoring an abstract concept to a tap, a pond, a snack wrapper, so that mīzān became how forcefully the tap is opened); embedding in ritual (the value rides on an act of worship that is already daily, at the same time and place and under supervision; the prohibition of excess in Q.S. al-Aʿrāf/7: 31 [41] and the Prophet's example of ablution with one mud of water, narrated by al-Bukhārī, no. 201 [31] and Muslim, no. 325b [32], make water saving part of the etiquette of purification and not an external addition); and repetition with role modeling (reprimands with reasons, leaders' examples, and peer reminders, in line with uswah ḥasanah, Q.S. al-Aḥzāb/33: 21 [42]).

Habitus. Bourdieu [12] Bourdieu's concept of habitus explains how repeated practices within a social structure shape dispositions that may extend to other contexts. The findings indicate that rituals, supervision, and role modeling fostered environmental habits at school, but their transfer to the home remains unsupported and was reported by the school to be inconsistent. Thus, an emerging ecological habitus appears to remain dependent on school-based structures rather than being fully established. Moreover, the shift from fear of reprimand to habitual behavior does not necessarily demonstrate internalization, as sungkan (deference toward authority figures) may weaken in their absence. The data also do not establish whether water-saving practices began after environmental sustainability was incorporated into the KSP. Curriculum integration. Beane [38] distinguishes genuine integration around real problems from the insertion of themes into subjects. The documents are closer to insertion, while the observed lesson is closer to integration around problems of water and waste. This gap can be read two ways: as teacher creativity, and, given the statement that teachers "feel our way on our own", as a sign that the practice depends on individuals more than on curriculum design.

3.9. The Tri-Axis Model: Derivation from the Findings and Contribution

The Tri-Axis Model of Eco-Theology Integration (Figure 2) is the authors' synthesis of the findings above. Values read through Khalid's four principles, with amānah as a supporting concept, move through three axes that are sequential in analytical terms, not proven to be sequential in time: curricular infusion, transformative pedagogy, and the ecological habituation ecosystem. The labeled arrows mark the transfer patterns in Section 3.8, the return arrow shows repeated practice feeding school culture and later lesson development, and the dashed line marks the school boundary beyond which support from home and community was not aligned. Table 6 shows, axis by axis, the empirical findings on which each rests, the gap in the literature it addresses, and what it adds. The gaps are stated from the studies cited in this article; they are not a claim that no other study has examined these points.

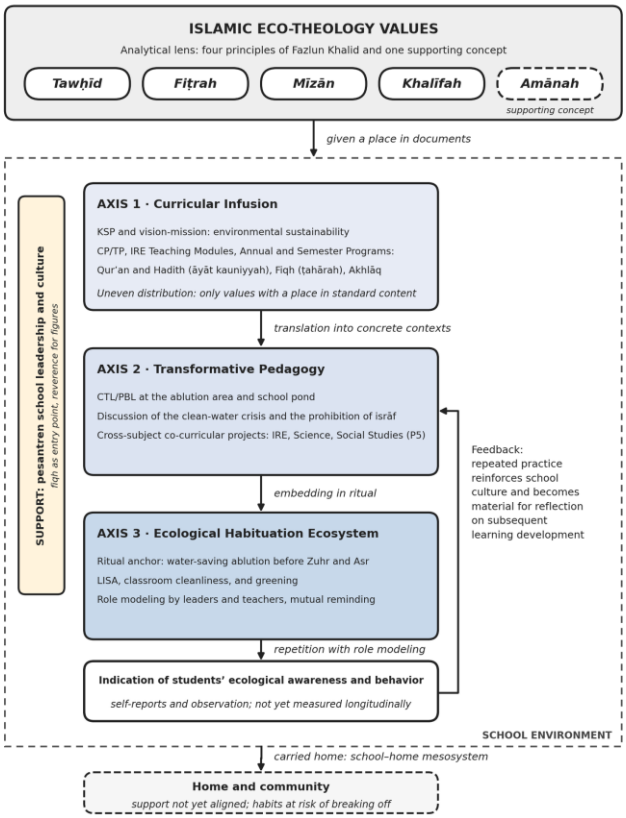


Figure 2. Tri-Axis Model of Eco-Theology Integration

Table 6. Tri-Axis Model: empirical basis, literature gap, and contribution

Axis	Empirical basis (section)	Gap in existing literature	Contribution of this study
Curricular infusion	Environmental sustainability set in the vision and mission and KSP, then mapped to CP/TP without a new subject (3.3); three values explicit, two implicit (Table 5)	Frameworks treat the curriculum as one general component (curriculum strengthening [25]; theological, pedagogical, and ecological dimensions [27]); infusion of environmental themes has been described [5], but the distribution of specific values across document types has not	Treats the document layer as an axis and shows that distribution follows available content, not intended values (P1)
Transformative pedagogy	CTL/PBL at the ablution area and pond; P5 Sustainable Lifestyle; division of roles among IRE, science, and social studies (3.4)	Contextual-reflective pedagogy has been mapped [25]; interdisciplinary integration remained conceptual [26]	Gives a teacher-reported, partly observed account of cross-subject roles linked to *mīzān* and *isrāf*, with its evidence limit (one group session) stated
Ecological habituation ecosystem	Ablution routine, LISA, role modeling, *sungkan*, peer reminders (3.5); discontinuity at home (3.6)	Habituation and role modeling are reported as components or outcomes [17], [18]; the mechanism by which some values become habits sooner, and the boundary of habituation, are less examined	Proposes embedding in ritual as one pathway and place-boundedness as a boundary condition (P2), and separates habituation from broader concern (Section 3.10)

Across the axes, the model differs from the frameworks listed above in three ways. It is grounded in a document review as well as in classroom and school evidence; it links axes by named transfer patterns and a feedback loop, which the comparison studies do not specify; and it reports where the chain stops (the home, and consumption and structural questions). As a single-case product, it is a proposition open to testing and not a validated model. Assessment is not treated as a fourth axis, because it was still at an early stage and could not be examined.

3.10. From Cleanliness to Ecological Concern: A Critical Reading

Whether habituation to cleanliness has developed into broader ecological concern was assessed with a four-level continuum constructed by the authors to read the data; it is not a standard framework from the literature (Table 7).

Table 7. Continuum of habituation and ecological concern

Level	Indicator	Evidence in the study	Assessment
Compliance	Behaving in an environmentally friendly way out of fear of reprimand	Early admission by PD-03; statement by PPL-01	Found at the early stage of habituation
Habits within the school	Saving water during ablution, proper disposal of litter, cleaning duty, LISA	Observation; statements by many informants; documents	Strongest, but limited to school space, time, and supervision
Religious motivation and peer supervision	Behaving for reasons of faith; reminding one another on religious grounds	PD-02, PD-03; GIPA-01/GIPS-01 and PPL-01	Early indication; self-reports and informants' statements
Broader concern	Questioning consumption patterns and structural problems; practices at home and in the community	Not found; school accounts indicate habits at home do not continue; no critical dimension apparent in instruction	Not yet demonstrated

Source: processed from research findings.

On this evidence the development has occurred only partially. Four conditions appear to explain it, and each is a proposition: a narrow entry point (fiṭrah as cleanliness); a place-bound anchor (supervised congregational ablution); a learning orientation toward individual behavior (waste, water, electricity), consistent with the emphasis on the affective domain noted by Rohman et al. [5]; and assessment that does not yet measure concern. The same feature that makes habituation work, namely ritual, supervision, and deference to figures, is also what ties it to place. Once students go home, the supervised tap, the reminding peers, and the exemplary figures are absent, so discontinuity outside school is not only a weakness of the home environment but the other side of the pattern that works at school. P5 activities (sorting, composting, greening, eco-printing) show a reach broader than cleanliness, but they are periodic, there is no evidence they continued as habits, and the greening-as-amānah account came from one informant. Muslim environmentalisms emphasize environmental justice and the rights of nature [8]; this dimension did not appear in the data, so the ecological piety formed risks stopping at a piety of cleanliness. For the model, the habituation axis explains how habits form but not how they broaden; movement to Level 4 is therefore a hypothesis and not an achievement.

3.11. Critical Comparison with Previous Studies

Table 8 sets each finding against earlier work, states where the findings agree and where they depart, and offers a reason that remains to be tested. The comparison is limited to studies cited in this article, and reasons for differences are hypotheses, not established explanations.

Table 8. Critical comparison of the findings with previous studies

Finding	Agrees with	Departs from or adds to	Possible reason for the difference (untested)

Finding	Agrees with	Departs from or adds to	Possible reason for the difference (untested)
Infusion without a new subject; uneven distribution of values (3.3, 3.7)	Rohman *et al.* [5] (environmental themes inserted into IRE); Mustofa *et al.* [16]	Here the school set policy in the KSP first, so infusion did not rest on teacher initiative alone, yet distribution stayed uneven; Rohmatulloh *et al.* [24] developed a framework for energy-saving values and did not report the distribution of values in IRE documents	The present study reviewed five document types against five values; [24] addresses a single value domain. Institutional legitimacy did not ensure even distribution
Tawḥīd as ontological foundation	Hasanah and Addzaky [11]; Azhari *et al.* [14] (care as worship)	The foundation did not translate evenly into operational practice here	The case suggests a gap between foundation and operation; one interview voice supports *tawḥīd*
Contextual, problem-based, cross-subject learning (3.4)	Sapitri *et al.* [25]; Muttaqin *et al.* [4]	Collaboration among IRE, science, and social studies, conceptual in Qudsiyah *et al.* [26], was reported as operating here	Evidence is a single group session, so this is a report of practice, not confirmation
Habituation through ritual and role modeling (3.5)	Zahro *et al.* [17] (elementary); Faradilah *et al.* [18] (madrasa tsanawiyah)	Ratnasari *et al.* [13] (Sekolah Alam Yogyakarta) used direct experience of nature as the anchor; here ritual is the anchor	Anchor appears to depend on school type: nature-based versus pesantren-based
Habits weaken outside school (3.6)	Zahro *et al.* [17]; Muttaqin *et al.* [4]	Faradilah *et al.* [18] reported habits carried home	Unclear. Differences in data sources (whether home-side accounts were collected), program design (P5RA), or school culture could each contribute [AUTHOR TO CONFIRM against [18]]; here all accounts came from the school
Barriers: teaching tools and assessment (3.6)	Mustofa *et al.* [16] (limited resources, teacher training); Sapitri *et al.* [25] (no standard indicators or validated instruments)	What is lacking is also worked examples of lesson design that weave verses, concepts, and environmental problems	Curation falls on teachers, which links to the individual-dependence reading in Section 3.8
Pesantren setting (3.6)	Studies of eco-pesantren [20], [21], Islamic values and environmental ethics [22], *santri* religiosity and awareness [23]; Javanese pesantren teachings supporting sustainability [9]	Adds a proposition that religious drive depends on ritual structures and figures in the setting, whether or not these are specific to pesantren	No comparison school was studied, so pesantren-specificity cannot be determined

Finding	Agrees with	Departs from or adds to	Possible reason for the difference (untested)
Changes in students	Taufikin [19] reported improved understanding	This study did not measure effectiveness; its findings are indications from self-reports and observation	A single-case, five-day design cannot support impact claims

Source: processed from previous studies and research findings.

Three points in this comparison are critical rather than descriptive. First, the strongest convergence across studies is the school-bound character of habituation [4], [17]; the one departure [18] is the most informative result, since it shows that carry-over to the home cannot be assumed and must be designed, and this study cannot say why it differs. Second, earlier work reports what environmental education in IRE contains, while this study asks which values are present and in which layer; the answer, that standard content and ritual determine which values travel, is a finding about selection that frameworks treating the curriculum as one element cannot show. Third, the findings qualify, but do not refute, accounts that place tawḥīd at the foundation of Islamic environmental education [11], [14]: the foundation was present as a reason, yet it did not by itself yield an even operational pattern. In each case the departure rests on one school and should be read as a proposition for testing.

3.12. Theoretical and Practical Implications

Theoretical implications. First, for eco-theology, the case suggests that a framework intended as a unified worldview [6] may be applied selectively when it enters school practice, so analyses of integration should track each value separately. Second, for habitus theory [12], it offers a school case in which dispositions formed under ritual and supervision but transposition was not shown, which sharpens the question of what conditions make dispositions portable. Third, for curriculum theory [38], it shows insertion in documents and integration in classroom practice coexisting in one school, so document analysis alone would understate what teachers do while the classroom alone would overstate what the curriculum secures. Fourth, the Tri-Axis Model supplies a unit of analysis (the value, traced across three axes) that later studies can test through the three propositions in Section 3.13. Practical implications. Table 9 ties each implication to a finding. All are conditional on similar contexts and are suggestions to be tried gradually, not prescriptions.

Table 9. Practical implications by actor

Actor	Implication	Finding it rests on
IRE teachers	Use the fiqh and ritual entry point (*ṭahārah*, *isrāf*) while deliberately widening *fiṭrah* and *amānah* beyond cleanliness, for example through lessons on consumption and packaging	Narrowing of *fiṭrah*; implicit status of *fiṭrah* and *amānah* (3.2, 3.3)
School and foundation leaders	Give *fiṭrah* and *amānah* an explicit place in the KSP, CP/TP, and modules; keep visible role modeling; plan school–home programs	Implicit status in documents; role of *sungkan* and leadership; weak home continuity (3.3, 3.5, 3.6)
Program coordinators	Develop indicators and a structured instrument that can detect Level 3 and Level 4 concern, not only school behavior	Assessment at an early stage; Table 7 (3.5, 3.10)
Curriculum developers and textbook authors	Provide worked lesson designs that combine verses, concepts, and environmental problems, including consumption patterns	Minimal and theoretical textbook chapter; teachers “feel our way on our own” (3.6)
Cross-subject teams	Formalize the theological–scientific–social division of roles and allocate coordination time	Group-session account; coordination and time constraints (3.4, 3.6)

3.13. Limitations, Transferability, and Scope of the Claims

This is a single-case study of one Islamic junior high school under a pesantren foundation, and the data were collected over five days (20–24 September 2026). Both facts constrain the generalizability of the findings. A single case does not support statistical generalization; its contribution is analytic generalization, that is, propositions to be tested in other cases [28]. A five-day window captured one moment in the odd semester and cannot show how habits change, persist, or fade over time. The findings therefore describe this school in this period, and their application to other schools depends on similarity of context.

Several further constraints narrow the evidence. Student accounts come from six ninth-grade students chosen by the principal and are self-reports, with a risk of social desirability bias. The account of cross-subject

collaboration comes from one group session. All accounts of home practice came from the school side. Coding was done by one researcher without an independent coder, so inter-coder reliability was not tested, and the researcher's position as a semi-insider may have influenced interpretation despite triangulation and member checking. Separate parental or guardian consent was not obtained for the student informants (Section 2.6). Assessment of eco-theological learning was not a focus.

This study does not establish a causal relationship. It does not show that infusing values into the curriculum, the instructional strategies, or the habituation program caused the habits or motivations reported, and it does not demonstrate [AUTHOR TO CONFIRM wording of the reviewer's truncated sentence, e.g., "the effectiveness of the Tri-Axis Model or measured behavior change in students"]. The order of the axes is analytical and not proven chronological. The model is a proposition derived from a case and has not been tested.

Some elements appear context-bound: embedding in congregational ablution presupposes a routine, supervised prayer schedule, and sungkan toward the kiai and principal rests on an authority relationship that informants associated with pesantren culture. Two patterns may be transferable on a conditional basis: that values with an entry point in standard content and ritual more readily become habits, and that habituation dependent on supervision and figures tends to be place-bound. The second is consistent with Muttaqin et al. [4] and Zahro et al. [17] but not with Faradilah et al. [18], so its transferability is undetermined. The findings are therefore formulated as three testable propositions:

P1. Values that have an entry point in standard content and daily ritual become habits more quickly than values that live only orally.

P2. Habituation that depends on supervision and role models tends to be place-bound and does not automatically transfer to the home.

P3. Extending from cleanliness habits to broader ecological concern requires learning that explicitly addresses consumption patterns and structural problems. This is a further hypothesis because this study has no data to support it.

Future research should test these propositions through multi-site comparisons of pesantren-based Islamic schools, non-pesantren Islamic schools, and nature schools [27]; through longitudinal designs that follow the same students into the home, with parents as informants; and through mixed-method designs that develop and validate instruments of ecological awareness and behavior grounded in Islamic values and that use more than one coder.

4. CONCLUSION

This study concludes that Islamic eco-theological values were integrated into the Islamic Religious Education (IRE) curriculum at SMP Islam Plus El Mubarok Maguan through curricular infusion, contextual learning, religious rituals, habituation, and role modeling. However, the integration of the five values (tawḥīd, khalīfah, mīzān, fiṭrah, and amānah) was uneven, and the resulting environmental practices remained largely limited to cleanliness within the school environment. Leadership, pesantren culture, and community involvement supported implementation, while limited teaching resources, coordination challenges, and early-stage assessment presented barriers. The study proposes the Tri-Axis Model of Eco-Theology Integration, connecting curricular infusion, transformative pedagogy, and an ecological habituation ecosystem. Nevertheless, the findings are limited by the single-case design, short research period, and reliance on self-reported data. Future research should test this model through multi-site and longitudinal studies involving parents and diverse types of Islamic schools. Mixed-method approaches are also recommended to develop and validate instruments for assessing ecological awareness and environmentally responsible behavior grounded in Islamic values. These efforts may clarify whether school-based ecological habits can be sustained and extended to students' homes and communities.

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﴿ظَهَرَ الْفَسَادُ فِي الْبَرِّ وَالْبَحْرِ بِمَا كَسَبَتْ أَيْدِي النَّاسِ لِيُذِيقَهُم بَعْضَ الَّذِي عَمِلُوا لَعَلَّهُمْ يَرْجِعُونَ﴾

Translation: Corruption has appeared on land and sea because of what human hands have done, so that Allah may let them taste part of what they have done, that they may return.

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عَنْ أَنَسٍ رَضِيَ اللَّهُ عَنْهُ قَالَ: كَانَ النَّبِيُّ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ يَغْسِلُ، أَوْ كَانَ يَغْتَسِلُ، بِالصَّاعِ إِلَى خَمْسَةِ أَمْدَادٍ، وَيَتَوَضَّأُ بِالْمُدِّ

Translation: Anas (may Allah be pleased with him) said: The Prophet (peace be upon him) used to wash, or to bathe, with one *ṣāʿ* up to five *mud* of water, and to perform ablution with one *mud*.
[32] Muslim bin al-Ḥajjāj, *Ṣaḥīḥ Muslim*, Book of Menstruation (*Kitāb al-Ḥayḍ*), chapter on the recommended measure of water for bathing, hadith no. 325b (Muḥammad Fuʾād ʿAbd al-Bāqī numbering). [Online]. Available: https://sunnah.com/muslim/3/59

عَنْ أَنَسٍ رَضِيَ اللَّهُ عَنْهُ قَالَ: كَانَ النَّبِيُّ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ يَتَوَضَّأُ بِالْمُدِّ، وَيَغْتَسِلُ بِالصَّاعِ إِلَى خَمْسَةِ أَمْدَادٍ

Translation: Anas (may Allah be pleased with him) said: The Prophet (peace be upon him) used to perform ablution with one *mud* and to bathe with one *ṣāʿ* up to five *mud* of water.
[33] *Al-Qur'an*, Surah ar-Rūm (30), verse 30.

﴿فَأَقِمْ وَجْهَكَ لِلدِّينِ حَنِيفًا ۚ فِطْرَتَ اللَّهِ الَّتِي فَطَرَ النَّاسَ عَلَيْهَا ۚ لَا تَبْدِيلَ لِخَلْقِ اللَّهِ ۚ ذَٰلِكَ الدِّينُ الْقَيِّمُ وَلَٰكِنَّ أَكْثَرَ النَّاسِ لَا يَعْلَمُونَ﴾

Translation: So set your face upright toward the religion, in accordance with the *fiṭrah* of Allah upon which He created humankind. There is no change in the creation of Allah. That is the upright religion, but most people do not know.
[34] Muslim bin al-Ḥajjāj, *Ṣaḥīḥ Muslim*, Book of Purification (*Kitāb al-Ṭahārah*), hadith no. 223 (excerpt; Muḥammad Fuʾād ʿAbd al-Bāqī numbering). [Online]. Available: https://sunnah.com/muslim/2/1

عَنْ أَبِي مَالِكٍ الْأَشْعَرِيِّ رَضِيَ اللَّهُ عَنْهُ قَالَ: قَالَ رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ: «الطُّهُورُ شَطْرُ الْإِيمَانِ»

Translation: Abu Malik al-Ashʿarī (may Allah be pleased with him) narrated that the Messenger of Allah (peace be upon him) said: "Purification is half of faith."
[35] *Al-Qur'an*, Surah Āli ʿImrān (3), verses 190–191.

﴿إِنَّ فِي خَلْقِ السَّمَاوَاتِ وَالْأَرْضِ وَاخْتِلَافِ اللَّيْلِ وَالنَّهَارِ لَآيَاتٍ لِّأُولِي الْأَلْبَابِ ﴿١٩٠﴾ الَّذِينَ يَذْكُرُونَ اللَّهَ قِيَامًا وَقُعُودًا وَعَلَىٰ

جُنُوبِهِمْ وَيَتَفَكَّرُونَ فِي خَلْقِ السَّمَاوَاتِ وَالْأَرْضِ رَبَّنَا مَا خَلَقْتَ هَٰذَا بَاطِلًا سُبْحَانَكَ فَقِنَا عَذَابَ النَّارِ﴾ ﴿١٩١﴾

Translation: Indeed, in the creation of the heavens and the earth and the alternation of night and day there are signs for people of understanding (190), who remember Allah while standing, sitting, and lying on their sides, and who reflect on the creation of the heavens and the earth: "Our Lord, You did not create all this in vain; glory be to You, so protect us from the punishment of the Fire" (191).
[36] Badan Standar, Kurikulum, dan Asesmen Pendidikan, *Keputusan Kepala BSKAP Nomor 046/H/KR/2025 tentang Capaian Pembelajaran pada Pendidikan Anak Usia Dini, Jenjang Pendidikan Dasar, dan Jenjang Pendidikan Menengah* (in Indonesian). Jakarta, Indonesia: Kemendikdasmen, 16 Jul. 2025. [Online]. Available: https://guru.kemendikdasmen.go.id/dokumen/74r6Yln0zK
[37] Badan Kebijakan Pendidikan Dasar dan Menengah, *Keputusan Kepala BKPDM Nomor 020 Tahun 2026 tentang Perubahan atas Keputusan Kepala BSKAP Nomor 046/H/KR/2025 tentang Capaian Pembelajaran pada Pendidikan Anak Usia Dini, Jenjang Pendidikan Dasar, dan Jenjang Pendidikan Menengah* (in Indonesian). Jakarta, Indonesia: Kemendikdasmen, 11 Jun. 2026. [Online]. Available: https://bkpdm.kemendikdasmen.go.id/publikasi/capaian-pembelajaran-baru-telah-terbit-yang-berubah-hanya-mata-pelajaran-agama-dan-budi-pekerti
[38] J. A. Beane, *Curriculum Integration: Designing the Core of Democratic Education*. New York, NY, USA: Teachers College Press, 1997.

[39] *Al-Qur'an*, Surah al-Baqarah (2), verse 30.

﴿وَإِذْ قَالَ رَبُّكَ لِلْمَلَائِكَةِ إِنِّي جَاعِلٌ فِي الْأَرْضِ خَلِيفَةً ۖ قَالُوا أَتَجْعَلُ فِيهَا مَن يُفْسِدُ فِيهَا وَيَسْفِكُ الدِّمَاءَ وَنَحْنُ نُسَبِّحُ بِحَمْدِكَ وَنُقَدِّسُ لَكَ ۖ قَالَ إِنِّي أَعْلَمُ مَا لَا تَعْلَمُونَ﴾

Translation: And (remember) when your Lord said to the angels, "Indeed, I am going to place a *khalīfah* on the earth." They said, "Will You place on it one who will cause corruption therein and shed blood, while we exalt You with praise and sanctify You?" He said, "Indeed, I know that which you do not know."

[40] *Al-Qur'an*, Surah Hūd (11), verse 61.

﴿وَإِلَىٰ ثَمُودَ أَخَاهُمْ صَالِحًا ۚ قَالَ يَا قَوْمِ اعْبُدُوا اللَّهَ مَا لَكُم مِّنْ إِلَٰهٍ غَيْرُهُ ۖ هُوَ أَنشَأَكُم مِّنَ الْأَرْضِ وَاسْتَعْمَرَكُمْ فِيهَا فَاسْتَغْفِرُوهُ ثُمَّ تُوبُوا إِلَيْهِ ۚ إِنَّ رَبِّي قَرِيبٌ مُّجِيبٌ﴾

Translation: And to Thamūd (We sent) their brother Ṣāliḥ. He said, "O my people, worship Allah; you have no deity other than Him. He created you from the earth and made you those who make it flourish, so seek His forgiveness and then repent to Him. Indeed, my Lord is near and responsive."

[41] *Al-Qur'an*, Surah al-Aʿrāf (7), verse 31.

﴿يَا بَنِي آدَمَ خُذُوا زِينَتَكُمْ عِندَ كُلِّ مَسْجِدٍ وَكُلُوا وَاشْرَبُوا وَلَا تُسْرِفُوا ۚ إِنَّهُ لَا يُحِبُّ الْمُسْرِفِينَ﴾

Translation: O children of Adam, take your adornment at every (entry into a) mosque, and eat and drink, but do not be excessive. Indeed, He does not like those who are excessive.

[42] *Al-Qur'an*, Surah al-Aḥzāb (33), verse 21.

﴿لَّقَدْ كَانَ لَكُمْ فِي رَسُولِ اللَّهِ أُسْوَةٌ حَسَنَةٌ لِّمَن كَانَ يَرْجُو اللَّهَ وَالْيَوْمَ الْآخِرَ وَذَكَرَ اللَّهَ كَثِيرًا﴾

Translation: Indeed, in the Messenger of Allah you have an excellent example for whoever hopes for (the pleasure of) Allah and the Last Day and remembers Allah often.