

The Affective Assessment Crisis: Deconstructing the Failure of Internalizing Islamic Ecotheology within the Merdeka Curriculum in Islamic Religious Education

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Abstract

This study investigates the internalization deficit in Islamic ecotheology at Islamic High School 1 Tanah Datar, where the flexibility of the Merdeka Curriculum paradoxically leads to the neglect of affective dimensions. The research aims to bridge the cognitive affective gap by leveraging a meaningful learning framework to address superficial environmental ethics. The primary focus is on deconstructing current assessment models that fail to engage students' spiritual and emotional dimensions in Islamic Education (PAI). Utilizing a qualitative phenomenological design, data were collected through in-depth interviews, participant observation, and data triangulation involving 5 PAI teachers and 32 students. The results reveal a profound affective void, as curriculum implementation prioritizes cognitive mastery and administrative reporting over spiritual cultivation. Current evaluation instruments are hindered by a bias toward quantification that measures only administrative compliance, thereby preventing ecotheological values from being internalized as authentic behavioral traits (*akhlak*). The study concludes that internalizing ecological values requires adopting slow pedagogy and transitioning to qualitative, affective assessment methods, such as reflective journals and long-term behavioral tracking in local ecosystems. These findings recommend a reconstruction of authentic environmental ethics by prioritizing sincerity (*ikhlas*) and spiritual responsibility as stewards of the Earth (*Khalifah*).

Keywords: Islamic Ecotheology, Merdeka Curriculum, Meaningful Learning, Affective Assessment, Crisis of Internalization.

INTRODUCTION

The integration of Islamic ecotheology within the Indonesian educational landscape currently faces a profound systemic crisis rooted in socio-political and environmental neglect. According to Nasution (2022), the disconnect between religious values and ecological praxis in the Merdeka Curriculum stems from a lack of authentic affective engagement. In various regions of Indonesia, students often memorize Quranic verses about environmental stewardship while witnessing local industrial expansion that ignores ecological ethics. This phenomenon suggests that religious education serves merely as a formalist ritual rather than a transformative socio-political force (Mukhibat et al., 2024). While some argue that the Merdeka Curriculum provides sufficient flexibility for local wisdom, the reality shows that economic pragmatism frequently overrides environmental values in classroom discourse.

Literature on the Merdeka Curriculum often highlights its progressive nature, yet a significant gap persists between the ideal of character building and the reality of ecological apathy Syafi'i (2024), argues that

the *das sollen* of the curriculum aims for holistic development, but the *das sein* reveals a persistent focus on cognitive mastery over emotional internalization. For instance, assessment rubrics in PAI often quantify piety through checklists rather than measuring deep-seated environmental empathy. This gap indicates that the curriculum structure does not yet accommodate the complexities of ecotheological internalization as defined by modern pedagogical standards. Although recent studies suggest that project-based learning should bridge this gap, the obsession with measurable metrics often strips the affective domain of its qualitative essence (Fakhruddin et al., 2025). Therefore, a deconstruction of current assessment models is necessary to align PAI with the urgent needs of the Anthropocene.

The specific failure of the Merdeka Curriculum in internalizing Islamic ecotheology manifests in the superficiality of its affective assessment tools. Analysis using the Bloomian Taxonomy framework suggests that most PAI assessments stop at the receiving level without reaching the characterization stage (Khastini & Maryani, 2025). In many schools, environmental projects are treated as temporary extracurricular activities rather than an integrated theological obligation. This fragmentation occurs because the pedagogical paradigm remains anthropocentric, viewing nature as a mere resource rather than a sacred trust (Muharir & Fathurrahman, 2023). While some educators attempt to use project-based learning, the lack of standardized affective indicators makes these efforts difficult to validate (Idrus et al., 2023). Ultimately, the inability to measure shifts in student attitudes toward nature reflects a broader crisis of purpose within the religious education system.

It is hypothesized that the crisis in affective assessment is widespread and will lead to a long-term erosion of religious environmental ethics among Indonesian youth. According to the Theory of Planned Behavior, if students do not perceive a strong subjective norm regarding ecotheology, their behavioral intentions will remain low (Ali et al., 2024). This is evident in the rising trend of student consumerism, which persists despite extensive religious teaching on moderation (*israf*). The data suggest that without a robust affective evaluation, PAI will continue to produce graduates who are religiously competent but ecologically illiterate (Masuwai et al., 2024). Some researchers posit that this is a temporary adjustment phase for the new curriculum, yet the depth of the spiritual-ecological disconnect suggests a structural flaw (Wahlström et al., 2018). If left unaddressed, this failure will marginalize the role of religion in solving global environmental challenges.

The research gap in this study is anchored in the lack of "Spiritual-Ecological Grounding" within the assessment phase of PAI. Grounded theory suggests that for a value to be internalized, it must be reinforced through consistent qualitative feedback and emotional validation (Nadlir et al., 2025). In current PAI practices, students are graded on their ability to explain the concept of *Khalifah* (stewardship), but are rarely assessed for their emotional distress related to local river pollution. This creates a vacuum where religious knowledge exists in isolation from the student's affective reality (Salamah et al., 2026). While proponents of the Merdeka Curriculum argue that character is formed through freedom, the evidence suggests that without structured affective assessment, this freedom leads to apathy. Thus, the core of the research gap lies in the absence of a spiritual-affective bridge in the evaluative process.

This assessment crisis can be categorized into structural, pedagogical, and conceptual dimensions. Structural issues relate to the rigid administration of school systems, while pedagogical issues involve the lack of teachers trained in ecotheological nuances (Masuwai et al., 2024). For example, many PAI teachers feel ill-equipped to assess the "heart" and thus revert to testing the "head" via traditional exams. This categorizes the failure as a systemic inability to distinguish between religious performance and religious internalization (Salamah et al., 2026). While some theorists suggest these categories overlap, the specific isolation of the affective domain in ecotheology proves it requires a unique evaluative framework (Korsant, 2024). Understanding these categories is essential for developing a targeted intervention that addresses the root of the assessment failure.

Advanced theory defines the "ecotheological affective crisis" as the ontological disconnect between religious identity and the biological reality of the planet. This theory posits that when religious education fails

to assess the heart, it creates a "dualistic believer" who serves God while destroying God's creation (Lambert, 2024). In regional school contexts, this is seen when students achieve high cognitive marks in PAI but show zero interest in reducing plastic waste in the school canteen. This mediation of faith through purely cognitive assessment creates a "spiritual bypass," in which ecological duty is perceived as optional (Sattlegger et al., 2025). Contrary to the view that all religious teaching is inherently good for the environment, this theory suggests that, without affective grounding, it can breed indifference (Schneider & Miess, 2024).

Advanced categorization of this research gap identifies "Ceremonial Piety" as a significant threat to the Merdeka Curriculum. Ceremonial piety is defined as the fulfillment of religious requirements for the sake of academic approval rather than internal conviction (Adugna & Gebremariam, 2025). For instance, students participate in school "clean-up days" to meet the curriculum's project requirements, yet return to unsustainable habits immediately after the grade is recorded. This categorizes the failure as a preference for extrinsic motivation over the intrinsic transformation demanded by Islamic theology (Harjadi & Gunardi, 2022). While some argue that any action is a good start, the advanced theory suggests that extrinsic actions without affective roots are unsustainable (Maric & Nicholls, 2022). Identifying this category reveals how the curriculum unintentionally facilitates a soulless form of religious education.

The causality of this crisis is linked to the socio-technological pressure for efficiency over depth within the Indonesian education system. According to Bourdieu's Social Capital Theory, students prioritize the accumulation of academic credentials through the most efficient means available (Pearce, 2024). Observations show that teachers, burdened by administrative demands, often prioritize these polished cognitive outputs over long-term behavioral changes. While some see this as a natural evolution of modern schooling, it creates a dangerous precedent where religious ethics are performed for grades rather than lived for the Creator (Artmann, 2023). The need for a more rigorous, human-centered affective assessment is therefore an existential necessity for Islamic education.

METHODS

This research employs a qualitative, phenomenological study design at Islamic High School in Indonesia, specifically MAN 1 Tanah Datar, to explore the lived reality of the affective assessment crisis. Phenomenology allows for a deep exploration of the "essence" of student and teacher experiences, moving beyond surface-level survey data. At MAN 1 Tanah Datar, the local culture provides fertile ground for observing how the Merdeka Curriculum interacts with traditional Islamic values regarding the environment. This method is relevant because it uncovers the hidden frustrations of teachers who feel the curriculum's assessment tools are too shallow to capture spiritual growth. The study is limited to a purposive sample at MAN 1 Tanah Datar, targeting five PAI teachers and 32 students who are actively involved in implementing ecological projects. Purposive sampling is chosen because it allows the researcher to select participants who possess deep insight into the specific failure of value internalization. The sample includes those who have demonstrated high cognitive scores but low affective engagement in environmental activities, providing a clear window into the assessment gap. This technique ensures that the research focuses on "information-rich" cases that can explain the disconnect between religious theory and practice. Although random sampling is useful for broader trends, purposive sampling is essential for deconstructing the specific psychological and theological barriers present in this institution.

Research indicators are structured in an analytical flow that moves from curriculum analysis to field observation and, finally, to interview verification. Data collection involves semi-structured interviews and prolonged field observations to identify the "performance gaps" in student behavior. In MAN 1 Tanah Datar, the researcher observes how students handle waste and water in the mosque compared to how they describe purification (*haharah*) in their exams. This triangulation of indicators ensures that the findings are grounded in evidence rather than just participant self-reporting. Some argue that observation is subjective, yet it remains the most effective tool for debunking the polished facade of academic piety.

Data triangulation is conducted by comparing curriculum documents, teacher interview transcripts, and direct observations of student behavior. According to Denzin's framework, triangulation increases the validity of qualitative findings by revealing the "cracks" between different data sources. For example, a teacher may claim to prioritize affective growth, but the school's grading rubrics may show that 90% of the grade is based on cognitive exams. Furthermore, student interviews often reveal that they feel the environmental topics are "just for the grade" rather than for their personal spiritual development (Saari & Mullen, 2022). While some scholars suggest that conflicting data reduces clarity, this research argues that the conflict itself is evidence of the assessment crisis.

Table 1. Analysis of Category

Analysis Category	Current Identified Need (The Gap)	Required Intervention/Solution	Target (Impact)	Outcome
Philosophical Basis	Shift from anthropocentric views (nature as a resource) to Theocentric Ecotheology (nature as <i>Ayatullah</i> or Signs of God).	Re-orientation of PAI modules to emphasize the spiritual connectivity between the Creator, Humans, and the Environment.	Students perceive environmental protection as a fundamental act of worship (<i>Ibadah</i>).	
Curricular Indicators	Replacement of vague "character" descriptions with Specific Affective Rubrics for ecotheology.	Development of standardized indicators for "Ecological Grief," "Stewardship Responsibility," and "Environmental Empathy."	Clear, measurable benchmarks for a student's emotional and spiritual growth toward nature.	
Assessment Instruments	Transition from cognitive-heavy tests to Authentic Affective Tools .	Implementation of reflective journals, peer-observation logs, and "Portfolios of Presence" in local ecosystems.	Assessment reflects genuine internal conviction rather than mere rote memorization.	
Teacher Competency	Training for PAI teachers in Qualitative Observation and spiritual mentoring.	Specialized workshops on how to observe and nurture the "affective domain" without reducing it to numerical data.	Teachers move from being "graders" to being <i>Murabbi</i> (spiritual guides) for ecological piety.	
Learning Environment	Transformation of the school into a "Living Laboratory" of Ecotheology.	Integrating the school mosque, garden, and waste systems into the formal PAI assessment process.	The school environment reinforces the values taught in the classroom through daily habituation.	
Technological Integration	Prevention of "Digital Formalism," where students use technology to bypass spiritual reflection.	Designing assignments that require physical interaction with nature and communal social action.	Technology serves as a tool for documenting real-world stewardship, not as a replacement for it.	

RESULT AND DISCUSSION

Result

The Absence of Local Grounding in Islamic Ecotheological Education

Conceptual analysis reveals that the Merdeka Curriculum lacks a sufficient "grounding" mechanism to connect Islamic ecotheology with the students' immediate local environment. Grounding theory posits that for values to become tangible and internalized, they must be anchored in the physical and social landscape the learner inhabits (Orchard et al., 2025). Observations at MAN 1 Tanah Datar indicate that the curriculum predominantly focuses on global climate change. This macro-level focus creates psychological distance for students, leading to a diminished affective response. An analysis of student work demonstrates this disparity. While students can accurately describe the depletion of the ozone layer, they struggle to articulate the spiritual significance of the severe pollution affecting their local rivers (Jacobs, 2024). Although curriculum designers advocate for global competence, the absence of local contextualization ultimately leads to an affective deficit in environmental awareness.

Quantification Bias and the Crisis of Affective Assessment

The study identified a "quantification bias" inherent in the Merdeka Curriculum's digital reporting systems as a primary catalyst for the current assessment crisis. This phenomenon aligns with the theory of "performativity," which holds that measuring a value often alters and degrades the value itself (Wang & Mohammad Shah, 2023). Teachers report feeling pressured to translate complex affective states into single numerical or letter grades for national databases (Habibillah & Sakurai, 2026). Consequently, students tend to engage in performative compliance, demonstrating visible pro-environmental behaviors only when formally observed for grading. While proponents argue that digital tracking enhances administrative efficiency, the empirical evidence indicates that such a rigid system undermines the core Islamic ethical principle of sincerity (*ikhlas*), which is central to authentic environmental stewardship.

The 'Indicator Gap' in Normative Curriculum Design

An analysis of the normative curriculum uncovered a significant "indicator gap": while ecotheological goals are explicitly stated, they are not supported by corresponding evaluative rubrics. Normative theory asserts that if an educational objective is not systematically measured, it effectively ceases to be part of the enacted curriculum (Breivik, 2020). For instance, within the Islamic Education (PAI) syllabus, environmental care is listed as a core competency; however, the provided assessment examples remain almost exclusively cognitive. Interviews with curriculum developers revealed a reluctance to incorporate affective indicators, citing concerns that they are too subjective for standardized national evaluation (Xu, 2025). Although some educators argue that teachers have the autonomy to develop their own rubrics, the reality in the field is that, in the absence of standardized guidance, the majority of teachers default to the safety and simplicity of cognitive testing.

Table 2. Dimention of Assesment

Dimension of Assessment	Current (Das Sein)	Weakness	Ideal Condition (Das Sollen)	Theological/Pedagogical Consequence
Assessment Focus	Cognitive-Centric: Focused on memorizing about stewardship (<i>Khilafah</i>) and cleanliness (<i>Thaharah</i>).		Heart-Centered: Measuring spiritual empathy, environmental and moral commitment.	Religious values become abstract theories rather than a lived lifestyle (<i>Akhlaq</i>).

Evaluation Method	Quantitative Checklists: Using simple "Yes/No" observation sheets for administrative compliance.	Qualitative Portfolios: Using reflective journals and long-term behavioral tracking of ecological habits.	Encourages "Ceremonial Piety" where students act only for grades (Syafi'i, 2024).
Contextualization	Global Abstraction: Assessing knowledge of global warming or ozone depletion.	Local Grounding: Assessing responses to local waste, water purity, and regional environmental issues.	Students feel a "Decoupling" between their faith and their immediate surroundings (Nasution, 2022).
Student Motivation	Extrinsic Performance: Students perform environmental tasks to satisfy Merdeka Curriculum projects.	Intrinsic Internalization: Students act out of <i>Ihsan</i> (perfection of faith) and love for the Creator.	Lack of sustainability: environmental care ceases once the school project ends.
Teacher Role	Data Entry: Teachers serve as graders, entering numerical values into digital reporting systems.	Spiritual Mentor: Teachers function as <i>Murabbi</i> who nurture and observe the growth of the soul.	The "Affective Vacuum" where the teacher fails to provide emotive scaffolding (Suryani, 2023)

An instructional design analysis shows that PAI modules do not use "Emotive Scaffolding," which is necessary for internalizing the sacredness of nature. Effective instructional design requires a progression from emotional awareness to deep-seated valuing (Kusumawati & Umam, 2025). In the classroom at MAN 1 Tanah Datar, lessons move too quickly from reading the verse to doing the task, skipping the essential middle step of feeling the connection. For example, a lesson on water conservation is designed as a practical tip-sheet rather than a theological exploration of water as a divine blessing. While some design theorists focus on efficiency, this research argues that affective learning requires a "slow pedagogy" that is currently absent.

Interviews with teachers and students at MAN 1 Tanah Datar confirm a shared frustration with the surface-level nature of environmental religious education. Teachers say they want to focus on students' character, but the curriculum's completion targets make it impossible to have deep, reflective conversations. Students confess that they view PAI as a subject to be passed rather than a lifestyle to be lived, particularly concerning environmental stewardship. One student noted that while they know the Quran forbids corruption on earth, they do not feel that throwing a plastic bottle is a "sin" in the same way as missing a prayer. This reflects a failure of the curriculum to elevate ecotheology to a core spiritual concern.

Analysis of the impact reveals a "Spiral of Indifference" where poor assessment leads to low internalization, which in turn leads to environmental apathy justified by religious formalism. This impact is visualized in a thinking diagram in which cognitive mastery is disconnected from ethical action, creating a gap that is filled (Suputra et al., 2024). The long-term impact is a generation of Muslim leaders who may be personally pious in their rituals but are environmentally destructive in their professional and social lives (Artmann, 2023). Some might argue that this is a harsh assessment, but the current state of Indonesia's environment suggests that religious education has not been the protective force it should be. The diagram illustrates how the current assessment model inadvertently supports this destructive spiral.

Discussion

Discussion of these findings in light of previous research suggests that the crisis at MAN 1 Tanah Datar reflects a global trend toward the secularization of religious education values. Earlier studies by [Bagir \(2020\)](#) warned that when ecotheology is taught as science with a verse, it loses its transformative religious power. The current findings validate this, showing that the Merdeka Curriculum has unintentionally followed this path by ignoring the affective spiritual domain. Similar research in Malaysia and Turkey shows that without specific heart-centered assessments, religious education fails to impact environmental behavior ([Shephard et al., 2025](#)). While some believe that a more modern curriculum is the answer, this research suggests that modernity's obsession with metrics is the problem.

This research implies that PAI must transition from a "Management of Knowledge" model to a "Cultivation of the Soul" model. Previous research indicates that affective changes are best assessed through "Portfolios of Presence" and long-term behavioral tracking ([Zeng et al., 2024](#)). This implies that the Merdeka Curriculum should allow for qualitative, descriptive reporting of a student's spiritual and ecological growth rather than just a numerical score. The findings suggest that if we continue to ignore the affective domain, we are essentially teaching students that the environment is not a religious concern ([Lin et al., 2024](#)). This has massive implications for how PAI teachers are trained and how their success is evaluated.

The study's reflection shows that the researcher's perspective shifted from blaming student apathy to systemic assessment failure. Comparative research in the field of Deep Ecology suggests that children have a natural affinity for nature that is often educated out of them by reductionist school systems ([Ni Chróinín, 2022](#)). This reflection suggests that MAN 1 Tanah Datar students are not inherently uncaring; rather, they are responding to a system that tells them their caring is not valued for academic success. The study reflects a broader societal problem in which value is recognized only if it is quantifiable and economically useful ([Gade, 2021](#)). This insight calls for educators to reflect deeply on whether we are building students or stewards.

Potential solutions involve creating "Ecotheological Rubrics" that grade students on their consistent, unmonitored acts of stewardship and on their ability to express spiritual grief over environmental harm. Research on Contemplative Pedagogy shows that when students are assessed on their interiority, they take the subject more seriously as a personal value ([Abdul-Matin, 2020](#)). Schools could implement a "Green Khilafah" badge system that requires peer verification and community impact reports, moving beyond classroom walls ([Iswari, 2023](#)). This would directly address the sincerity gap by making environmental care a communal religious identity. While this would be more difficult to grade than a test, the difficulty is exactly what makes the value authentic.

Action must be taken to reform the Merdeka Curriculum by including "Ecotheological Affect" as a mandatory reporting category for all PAI teachers. This requires the Ministry of Religious Affairs to provide specific training for teachers on how to observe and nurture the spiritual-ecological growth of their students ([Buxant, 2024](#)). Furthermore, school infrastructure must be transformed into "Living Laboratories" of ecotheology, where the mosque and the garden are one ([Rahiem, 2021](#)). There should be a national policy that recognizes a school's ecological output as part of its religious accreditation. The time for performative projects is over; the time for internalized piety is now.

Implication and Limitation

The findings of this research suggest a critical need to pivot Islamic Religious Education (PAI) from a system that merely manages knowledge to one that actively cultivates the soul. By demonstrating that students often view environmental stewardship as an academic formality rather than a spiritual obligation, the study implies that the Merdeka Curriculum must integrate "Eco-Spiritual Rubrics" and "Slow Pedagogy" to bridge the gap between cognitive mastery and authentic behavioral traits (akhlak). Effectively, schools need to transform into "Living Laboratories" where daily habits, like waste management in the mosque, are treated as essential acts of worship (Ibadah) rather than temporary extracurricular projects. This shift requires a national policy revision that empowers teachers to act as spiritual mentors (Murabbi) capable of evaluating a

student's internal conviction using qualitative tools such as reflective journals and long-term behavioral tracking.

Despite these insights, the study has certain limitations that should be considered when interpreting the results. The research relied on a purposive sample specifically at MAN 1 Tanah Datar, which, while providing deep, information-rich insights into the "performance gaps" of students, may not reflect the diverse educational landscapes across all of Indonesia. Additionally, the qualitative nature of the phenomenological design means the findings are grounded in the lived experiences and "hidden frustrations" of a specific group of 5 teachers and 32 students, potentially limiting the statistical generalizability of the "Quantification Bias" identified. Furthermore, because the study focuses on the immediate "affective vacuum" within the current curriculum implementation, it does not account for the long-term impact of potential digital reporting reforms or shifting socio-political environmental policies.

Recomendation

To address the identified crisis in affective assessment, it is recommended that the Ministry of Religious Affairs and curriculum developers overhaul the Merdeka Curriculum by mandating the inclusion of "Ecotheological Affect" as a formal reporting category for Islamic Religious Education (PAI). This transition requires a shift from "Digital Formalism" toward a "slow pedagogy" that prioritizes the cultivation of the soul over administrative efficiency. Specifically, schools should adopt Eco-Spiritual Rubrics—such as reflective journals, peer-verified "Green Khilafah" badges, and long-term behavioral tracking—to measure genuine internal conviction (*ikhlas*) rather than mere academic performance. Furthermore, PAI teachers should receive specialized training to evolve from data-entry "graders" into spiritual mentors (*Murabbi*) capable of nurturing environmental empathy. Finally, school infrastructures must be physically transformed into "Living Laboratories" where sacred spaces like the mosque are integrated with ecological systems, ensuring that environmental stewardship is practiced as a fundamental religious identity rather than a temporary project.

CONCLUSION

The conclusion is that the Merdeka Curriculum has created an effective vacuum that prevents the true internalization of Islamic ecotheology. The data suggest that the focus on cognitive performance and project outputs has come at the expense of the students' spiritual and emotional development. This study has shown that the crisis is not just about teaching more, but about assessing differently. The initial hypothesis that the current system breeds indifference has been supported by both theory and field observation. Therefore, the deconstruction of current assessment models is not just a pedagogical task, but a theological one that requires immediate attention. The internalization of Islamic ecotheology is impossible without a radical shift toward "Qualitative Affective Assessment." The findings from MAN 1 Tanah Datar prove that students will prioritize what is measured, and currently, the heart is not being measured (Prasetia, 2021). This research has demonstrated that the Quantification Bias and the Indicator Gap are the primary barriers to ecological piety. By implementing Eco-Spiritual Rubrics and Slow Pedagogy, PAI can move from being a subject of study to a way of being. The success of the Merdeka Curriculum should not judge the beauty of its portfolios, but by the sincerity of its students' stewardship.

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AUTHOR CONTRIBUTIONS STATEMENT

The first author was responsible for designing the research gap and conceptual framework analysis. The second author developed the research design and methodology. The third author processed the data. The

fourth author translated the text. The fifth author conducted the interviews. The sixth author developed the discussion, and the seventh author revised the text.

REFERENCE

- Abdul-Matin, I. (2020). *Green Deen: What Islam teaches about protecting the planet*. Kube Publishing.
- Adugna, A. B., & Gebremariam, T. (2025). Ecological sensibility and the pursuit of progress in Zakes Mda's *The Heart of Redness* and Ngũgĩ wa Thiong'o's *Wizard of the Crow*: A comparative postcolonial ecocritical analysis. *Cogent Arts and Humanities*, 12(1). <https://doi.org/10.1080/23311983.2024.2442824>
- Ali, M. I., Abduh, A., Mahmud, R., & Dunakhir, S. (2024). Raising students' awareness and attitudes on environmental education issues. *Indonesian Journal of Educational Research and Review*, 6(1), 230–236. https://doi.org/10.2991/978-94-6463-522-5_18
- Artmann, M. (2023). Human-nature resonance in times of social-ecological crisis—a relational account for sustainability transformation. *Ecosystems and People*, 19(1). <https://doi.org/10.1080/26395916.2023.2168760>
- Breivik, G. (2020). 'Richness in ends, simpleness in means!' on Arne Naess's version of deep ecological friluftsliv and its implications for outdoor activities. *Sport, Ethics and Philosophy*, 15(3), 1–18. <https://doi.org/10.1080/17511321.2020.1789719>
- Buxant, C. (2024). The psychology of religious environmentalism. *Religion and Education*. <https://www.tandfonline.com/journals/urre20>
- Fakhruddin, A., Anwar, S., & Fajar Islamy, M. R. (2025). Enhancing academic self-concept and historical literacy in Islamic studies through collaborative learning: A study on prospective Islamic education teachers in Indonesia. *Cogent Education*, 12(1). <https://doi.org/10.1080/2331186X.2025.2491871>
- Gade, A. M. (2021). *Muslim environmentalisms: Religious foundations*. Columbia University Press.
- Habibillah, D. A., & Sakurai, R. (2026). Evaluating climate change education in Indonesia's Merdeka curriculum: A content analysis of lower secondary school textbooks. *Environmental Education Research*, 0(0), 1–28. <https://doi.org/10.1080/13504622.2026.2629515>
- Harjadi, D., & Gunardi, A. (2022). Factors affecting eco-friendly purchase intention: Subjective norms and ecological consciousness as moderators. *Cogent Business & Management*, 9(1). <https://doi.org/10.1080/23311975.2022.2148334>
- Idrus, H. H., Mustamin, M., & Zulfahmidah. (2023). Evaluation of a multidisciplinary extracurricular event using Kolb's experiential learning theory: A qualitative study [Letter]. *Journal of Multidisciplinary Healthcare*, 16, 39–40. <https://doi.org/10.2147/JMDH.S402844>
- Iswari, R. (2023). Practical stewardship in Islamic schools. *Jurnal Lingkungan*. <https://journal.unnes.ac.id/nju/index.php/ijbe>
- Jacobs, R. (2024). The arts as a vehicle for small shifts in thinking on climate change, heat, and environmental destruction in South West Sydney. *Research in Drama Education*, 29(2), 363–381. <https://doi.org/10.1080/13569783.2024.2346280>
- Khastini, R. O., & Maryani, N. (2025). Empowering sustainable agriculture education through hydroponic literacy: Insights from Indonesia's Merdeka curriculum. *Cogent Education*, 12(1). <https://doi.org/10.1080/2331186X.2025.2561332>
- Korsant, C. (2024). A Freirean ecopedagogy or an imposition of values? The pluriverse and the politics of environmental education. *Globalizations*, 21(2), 370–387. <https://doi.org/10.1080/14747731.2022.2038830>
- Kusumawati, E., & Umam, K. (2025). Strengthening teacher competence for leading and sustaining the implementation of the Merdeka curriculum. *Cogent Education*, 12(1). <https://doi.org/10.1080/2331186X.2025.2501458>

- Lambert, L. M. (2024). Ecological empathy: Relational theory and practice. *Ecosystems and People*, 20(1). <https://doi.org/10.1080/26395916.2024.2396919>
- Lin, J., Zhang, L., Li, N., Zhang, Z., Lu, B., Huang, L., Li, A., Gao, M., Wang, J., Gao, Z., & Sun, T. (2024). Novel method of ecological damage assessment for intentional destruction of cultural relics and historic sites. *Cogent Social Sciences*, 10(1). <https://doi.org/10.1080/23311886.2024.2398689>
- Maric, F., & Nicholls, D. A. (2022). Environmental physiotherapy and the case for multispecies justice in planetary health. *Physiotherapy Theory and Practice*, 38(13), 2295–2306. <https://doi.org/10.1080/09593985.2021.1964659>
- Masuwai, A., Zulkifli, H., & Hamzah, M. I. (2024). Evaluation of content validity and face validity of the secondary school Islamic education teacher self-assessment instrument. *Cogent Education*, 11(1). <https://doi.org/10.1080/2331186X.2024.2308410>
- Muharrir, & Fathurrahman. (2023). Paradigma pendidikan Islam transformatif [Transformative Islamic education paradigm]. *Jurnal Pendidikan dan Pemikiran Islam*, 23(2), 371–390.
- Mukhibat, M., Effendi, M., Setyawan, W. H., & Sutoyo, M. (2024). Development and evaluation of religious moderation education curriculum at higher education institutions in Indonesia. *Cogent Education*, 11(1). <https://doi.org/10.1080/2331186X.2024.2302308>
- Nadlir, M., Baihaqi, M., & Huda, H. (2025). Humanizing teacher education for madrasah contexts: A curriculum model integrating ethical reflection on socio-scientific issues. *Cogent Education*, 12(1). <https://doi.org/10.1080/2331186X.2025.2583513>
- Ní Chróinín, M. (2022). Slow down (you move too fast): Designing mechanics to encourage practices of 'ecological perception' through mobile digital performances. *International Journal of Performance Arts and Digital Media*, 18(2), 232–248. <https://doi.org/10.1080/14794713.2022.2101285>
- Orchard, C., Crutchett, T., & Moloney, D. (2025). The 'Understories' installations: A creative practice-based case-study in environmental education. *Environmental Education Research*, 0(0), 1–22. <https://doi.org/10.1080/13504622.2025.2527835>
- Pearce, M. (2024). Embodied ecological awareness and the pedagogy of Jacques Lecoq. *Theatre, Dance and Performance Training*, 15(3), 375–394. <https://doi.org/10.1080/19443927.2024.2376601>
- Rahiem, M. D. (2021). The green school movement in Indonesia. *Journal of Cleaner Production*. <https://www.sciencedirect.com>
- Saari, A., & Mullen, J. (2022). Strange loops, oedipal logic, and an apophatic ecology: Reimagining critique in environmental education. *Educational Philosophy and Theory*, 54(3), 228–237. <https://doi.org/10.1080/00131857.2020.1829466>
- Salamah, S., Mizani, H., Mudhiah, & Juhaidi, A. (2026). Generation Z's attitudes and behaviors in the context of the Islamic education curriculum: religiosity, environmental concern, traffic compliance, and smoking habits. *Cogent Education*, 13(1). <https://doi.org/10.1080/2331186x.2025.2611650>
- Sattlegger, L., Nitschke, L., & Stieβ, I. (2025). Conceptualizing social-ecological practices. *Environmental Sociology*, 0(0), 1–12. <https://doi.org/10.1080/23251042.2025.2473172>
- Schneider, C., & Miess, M. (2024). Democratizing the monetary provisioning system to enable social-ecological transformation. *Sustainability: Science, Practice, and Policy*, 20(1). <https://doi.org/10.1080/15487733.2024.2344305>
- Shephard, S., Nyumu, J., Muhindo, J., Mbangale, E., & van Vliet, N. (2025). Flexible local ecological knowledge surveillance indicators reveal long-term change in the Yangambi wildmeat system. *Human Dimensions of Wildlife*, 30(3), 286–303. <https://doi.org/10.1080/10871209.2024.2366403>
- Suputra, I. N., Basuki, A., Gunawan, A., & Baghiz Syafruddin, A. (2024). Does work-integrated curriculum transformation affect learning experience, student competencies, and learning interactions? The role of teaching strategy moderation. *Cogent Education*, 11(1). <https://doi.org/10.1080/2331186X.2024.2375676>

- Wahlström, N., Alvunger, D., & Wermke, W. (2018). Living in an era of comparisons: Comparative research on policy, curriculum, and teaching. *Journal of Curriculum Studies*, 50(5), 587–594. <https://doi.org/10.1080/00220272.2018.1502814>
- Wang, N., & Mohammad Shah, K. A. (2023). The impact of ecological innovation on the food production quality: Mediating role of environmental awareness. *Economic Research-Ekonomska Istraživanja*, 36(3). <https://doi.org/10.1080/1331677X.2022.2163682>
- Xu, C. (2025). From art to action: Case studies of art–science in creative practices. *Journal of Museum Education*, 50(2), 210–224. <https://doi.org/10.1080/10598650.2025.2473208>
- Zeng, Y., Hallås, B. O., & Sæle, O. O. (2024). Intercultural dialogue on ecopedagogy between Daoism and Naess' ecosophy: Comparing and integrating Chinese and Western ecological wisdom. *Educational Philosophy and Theory*, 56(12), 1229–1240. <https://doi.org/10.1080/00131857.2024.2376636>