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# THE RELATIONSHIP BETWEEN THE LEVEL OF UNDERSTANDING OF ECOLOGICAL ISLAMIC MATERIAL AND STUDENTS' ECOLOGICAL LITERACY

**Abdul Afwu Godly Prayitno[1a*], Nurbaeti[2b], Yoga Wahyu Wicaksono[3c], Sabarudin[4d], Topan Prianda Adinata[5e]**

[1]Pendidikan Agama Islam, Fakultas Ilmu Tarbiyah dan Keguruan, UIN Sunan Kalijaga, Yogyakarta
[2]Teknik Kimia, Teknik Rekayasa Kimia Berkelanjutan, Politeknik Negeri Ujung Pandang, Sulawesi Selatan
[3]Manajemen Pendidikan Islam, Fakultas Tarbiyah dan Ilmu Keguruan, UIN Syekh Wasil Kediri, Jawa Timur
[4]Pendidikan Agama Islam, Fakultas Ilmu Tarbiyah dan Keguruan, UIN Sunan Kalijaga, Yogyakarta
[5]Pendidikan Sejarah, Fakultas Keguruan dan Ilmu Pendidikan, Universitas PGRI Banyuwangi, Jawa Timur

[a]*E-mail: afwuabdul@gmail.com*
[b]*E-mail: nurbaeti.ibnoer02@gmail.com*
[c]*E-mail: wahyuridwanhan@gmail.com*
[d]*Email: sabarudin@uin-suka.ac.id*
[e]*Email: tofanbardan@gmail.com*

(*) Corresponding Author
afwuabdul@gmail.com

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**ABSTRACT**
Islamic Education plays a vital role not only in shaping the spiritual character of students but also in internalizing the values of environmental responsibility through the concept of Ecological Islam. This study aims to analyze the relationship between the understanding of Ecological Islam concepts and the ecological literacy of undergraduate students in addressing environmental issues. A quantitative approach with an *ex post facto* correlational design was employed. The research sample consisted of 219 students from the Faculty of Teacher Training and Education at Universitas PGRI Banyuwangi, selected using a stratified cluster sampling technique. Data were collected through the documentation of Islamic Education course grades to measure the understanding of Ecological Islam, alongside an adapted version of the Middle School Environmental Literacy Survey (MSELS) instrument to assess ecological literacy. Data analysis was performed using descriptive statistics and Pearson's Product-Moment correlation. The results demonstrated that: (1) students' ecological literacy was in the moderate category (87.21% of students, $\bar{x}$= *62,20*); (2) students' understanding of Ecological Islam was in the high category (67.58% of students, $\bar{x}$= *84,38*); and (3) there was a significant and very strong positive relationship between the understanding of Ecological Islam and students' ecological literacy ($r_{xy}$=*0,977, p(two-tailed) <0,01*). These findings demonstrate that a robust theological-ecological understanding significantly contributes to enhancing environmental awareness. Consequently, lecturers and curriculum designers are encouraged to continuously and sustainably integrate global environmental issues into Islamic Education learning.



## INTRODUCTION

The current state of environmental destruction has brought about a profound realization of how poorly humans interpret and treat the environment. As stated in the Qur'an, "Corruption has appeared throughout the land and sea by

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[reason of] what the hands of people have earned so He may let them taste part of [the consequence of] what they have done that perhaps they will return [to the right path]" (Q.S. Ar-Rum [30]: 41). In line with this statement, the Qur'an itself asserts that humans are inherently endowed with intellect and conscience to responsibly manage the earth, as implied in Q.S. Hud [11]: 61 and Q.S. Al-A'raf [7]: 56. In practice, however, the interconnected relationship between humans and the environment (*hablumminal 'alam*) remains far from ideal and sustainable (Kementerian Agama, 2021).

Meanwhile, environmental destruction encompass at least nine major issues, including: (1) climate change; (2) ocean acidification; (3) stratospheric ozone depletion; (4) biodiversity loss; (5) chemical pollution; (6) freshwater crisis; (7) land-use change; (8) biogeochemical flow boundaries; and (9) atmospheric aerosol loading (Steffen et al., 2015). Referencing these issues, the 2022 Environmental Performance Index (EPI) report released the environmental performance index of 180 countries globally. Regrettably, Indonesia ranked 164th, lagging significantly behind other nations worldwide. Even within the ASEAN region, Indonesia scored 28.20, positioning it among the bottom three, or eighth out of the ten ASEAN member states (Wolf et al., 2022). This serves as a critical warning that Indonesia must address in the future. Unquestionably, further investigation reveals that the decline in Indonesia's environmental performance index is heavily influenced by the high Environmental Indifference Behavior Index (IPKLH). According to the latest 2018 IPKLH report, the nation's index remains critically high at 0.51 (Subdirektorat Statistik Lingkungan Hidup, 2018).

The factors underlying this high IPKLH score can be attributed to the low ecological literacy of the Indonesian public in general. As stated by Orr, ecological literacy is the ability to comprehend and draw insights from the environmental crises occurring around humans (Orr, 1989). From this definition, it can be inferred that environmental indifference arises because the public lacks the capacity to recognize the impacts of the crises unfolding in their surroundings. Consequently, a significant portion of the Indonesian population fails to perceive the environment as a critical element that must be considered in every aspect of life. Therefore, enhancing the ecological literacy of the Indonesian public is paramount to reducing the high IPKLH score.

Efforts to enhance ecological literacy can be effectively realized through education. Environmental education has now been integrated into various university course curricula. One such integration is found within the Islamic Education (*Pendidikan Agama Islam*—PAI) course at FKIP UNIBA. Fundamentally, PAI not only facilitates an understanding of religious values but also provides insights into the importance of environmental ethics and responsibility. This is explicitly reflected in one of its instructional themes: "*Inspirations from the Qur'an: Preserving Nature, Sustaining Life*" The inclusion of this theme signifies that, alongside growing global concern over environmental and ecological issues, it has become paramount to foster ecological awareness through religious values (Masruroh, 2023).

Several similar studies have been conducted; however, very few have directly linked the understanding of Ecological Islam concepts with ecological literacy at the university or undergraduate level. Existing research remains confined to school-aged students. For instance, studies by Dida and Rusli demonstrated that religiosity can play a significant role in influencing environmentally friendly behavior. In Dida's findings, the influence of religiosity had a significant and positive impact on ecological literacy (Dida et al., 2022). Meanwhile, Rusli's study indicated that, on average, students in Islamic schools exhibited higher ecological literacy compared to those in public schools (3,821>3,684) (Yusuf et al., 2020). International research addressing environmental issues and religion utilizing the 2002/2003 European Social Survey (ESS) data has also identified an correlation between religiosity and environmental concern (Hagevi, 2014). Furthermore, investigation into students' ecological literacy has been explored by various researchers, including Nanda (Prasetyo, 2022), Nasution (Nasution, 2016), Desy (Rahmawati, 2017), Nisa' (Nisa', 2020), Zulaikha (Rokhmah & Fauziah, 2021), Ririn (Santoso et al., 2021), and Kathryn (Stevenson et al., 2013).

Based on the aforementioned data, it is evident that research intersecting Islam and the environment at the higher education level remains substantially scarce. Given the limited number of studies examining this intersection (specifically the relationship between the understanding of Ecological Islam concepts and undergraduate students' ecological literacy), it is imperative for this study to focus on analyzing the correlation between these two variables. In conclusion, the relationship between humans and the environment is a critical issue requiring immediate attention. The Qur'an provides profound guidance on environmental management, and Islamic Education (PAI) offers a valuable opportunity to instill these principles in university students. Investigating the correlation between the understanding of Ecological Islam and ecological literacy can provide insights into effective pedagogical practices, ultimately contributing to a more environmentally conscious society. By integrating religious values with ecological awareness, Indonesia can take significant strides toward improving its environmental performance and ensuring a sustainable future.

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## METHOD

This study is field research employing an *ex post facto* approach, which involves collecting data directly from the site where the phenomenon under study occurs without any treatment or manipulation by the researcher. This quantitative field research utilizes descriptive statistical analysis and Pearson's correlation test. The descriptive statistical analysis encompasses measures of central tendency (such as mean, median, and mode), measures of dispersion (such as range, standard deviation, and variance), and graphical representations (such as histograms, bar charts, and pie charts) to facilitate data presentation. Meanwhile, for the analytical test, Pearson's product-moment correlation is employed as a statistical method to measure the linear relationship between two variables. The correlation coefficient ($r$) is calculated by dividing the covariance of the two variables by the product of their standard deviations. However, if the data do not satisfy the assumptions required for the parametric test, Spearman's rank correlation test will be utilized as an alternative (Hanief & Himawanto, 2017).

The research subjects were determined using a stratified cluster sampling technique involving undergraduate students from three study programs within the Faculty of Teacher Training and Education (FKIP) at Universitas PGRI Banyuwangi (UNIBA): Guidance and Counseling, History Education, and Pancasila and Civics Education. To determine the minimum required sample size, the Slovin formula was applied, yielding a minimum sample of 219 students ($n$ = 219) from a total population of 480 students ($N$ = 480) (PD Dikti, 2026). The population was divided into three clusters (k = 3), and a proportional allocation was executed, resulting in a distribution of 112 students from Guidance and Counseling (n = 112), 50 students from History Education (n = 50), and 57 students from Pancasila and Civics Education (n = 57), thus totalizing 219 students (n = 219) (Cochran, 1997). The selection of individual subjects was based on specific inclusion criteria, which included: (1) late adolescence/young adulthood (aged 18–22 years); (2) sex/gender (male/female); and (3) active student status. Regarding gender distribution, the research subjects comprised approximately 64% female (n = 140) and 36% male (n = 79). These baseline characteristics of the research subjects were necessary to ensure equivalence with previous studies during the administration of the research instrument. Further details are presented in Table 1.

**Table 1. Basic Characteristics of the Research Subject**

| Characteristics | | N=219 | (%) |
|---|---|---|---|
| Gender | Male | 79 | 60 |
| | Female | 140 | 40 |
| Age | 18-22 | 219 | 100 |
| Status | Active | 219 | 100 |

Source: Primary data collected through direct observation

Data were subsequently collected through documentation and questionnaires following administrative clearance from the faculty, course lecturers, and the informed consent of the students. The documentation refers to the students' examination grades evaluating their understanding of Ecological Islam concepts, specifically under the instructional theme: "Inspirations from the Qur'an: Preserving Nature, Sustaining Life." Meanwhile, the questionnaire employed was the Middle School Environmental Literacy Survey (MSELS), which was adapted for the undergraduate level. The MSELS instrument is structured into five distinct sections: the first section gathers demographic data, including name, class, gender, and age; the second section consists of multiple-choice questions designed to measure environmental knowledge; the third section comprises essay questions to evaluate cognitive skills; the fourth section utilizes a 5-point Likert scale to assess environmental attitudes; and the final section employs a 5-point Likert scale to measure pro-environmental behavior (Nastoulas et al., 2017).

In this study, the research instrument utilized was the MSELS, which was adapted from Sri Handayanti with modifications appropriate for undergraduate students (Handayanti, 2020). Sri Handayanti's version was previously adapted from Tia Apriliani (Apriliani, 2019). The MSELS instrument was originally developed by McBeth, Hungerford, Marcinkowski, Volk, and Meyers, encompassing four core dimensions: (a) *ecological knowledge*, (b) *ecological awareness and affection*, (c) *cognitive skills*, and (d) *behavior* (McBeth et al., 2008). The instrument originally consisted of 74 items; however, following validity testing, it was reduced to 41 items. These remaining items comprise 10 items for environmental knowledge, 13 items for environmental attitudes, 6 items for cognitive skills, and 12 items for pro-environmental behavior. The validity and reliability coefficients from Sri Handayanti's study are presented in Table 2.

**Table 2. Validity and Reliability Coefficients from Sri Handayanti's Study**

| Dimension | Format/Items | Validty | Reliability |
|---|---|---|---|

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| | | | |
|---|---|---|---|
| Environmental Knowledge | Multiple-Choice (10 items) | 0.315-0.643 | 0.58 (Moderate) |
| Environmental Attitude | Essay (13 items) | 0.389-0.695 | 0.779 (High) |
| Cognitive Skills | Scale (6 items) | 0.487-0.782 | 0.76 (High) |
| Pro-Environmental Behavior | Scale (12 items) | 0.382-0.658 | 0.759 (High) |

Source: Adapted from *Table Validity and Reliability Coefficients* (p. 41-42), by S. Handayanti, 2020, Universitas Islam Negeri Syarif Hidayatullah Jakarta.

## RESULT AND DISCUSSION

The researcher utilized JASP software (version 0.97) to perform the data analysis, yielding several key findings interpreted as follows:

**Descriptive Statiscal Test**

The descriptive analysis revealed that the hypothetical scores for the understanding of Ecological Islam concepts ranged from a minimum of 50 to a maximum of 100 (Table 3). This distribution yielded a hypothetical mean of 75 and a standard deviation of 8.33. Meanwhile, the analysis of ecological literacy scores showed a hypothetical range between a minimum value of 6.25 and a maximum of 100, resulting in a hypothetical mean of 21 and a standard deviation of 15.625. Based on these analytical insights, the comprehensive descriptive data are further detailed in Table 4 and Table 5.

**Table 3. Descriptive Data Analysis**

| Variable | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|
| Ecological Literacy | 6.25 | 100 | 53.125 | 15.625 |
| Understanding of Ecological Islam | 50 | 100 | 75 | 8.33 |

Source: Primary data processed using JASP software (version 0.97).

**Table 4. Descriptive Analysis of Ecological Literacy**

| Category | Score Range | Frequency (*n*) | Percentage (%) |
|---|---|---|---|
| High | $68.75 \geq X$ | 28 | 12.79% |
| Moderate | $37.25 \leq X \leq 68.75$ | 191 | 87.21% |
| Low | $X < 37.25$ | 0 | 0% |
| Total | | 219 | 100% |

Source: Primary data processed using JASP software (version 0.97).

**Table 5. Descriptive Analysis of Ecological Islam Understanding**

| Category | Score Range | Frequency (*n*) | Percentage (%) |
|---|---|---|---|
| High | $83.33 \geq X$ | 148 | 67.58% |
| Moderate | $66.67 \leq X \leq 83.33$ | 66 | 30.14% |
| Low | $X < 66.67$ | 5 | 2.28% |
| Total | 219 | | 100% |

Source: Primary data processed using JASP software (version 0.97).

As indicated in Table 4, the descriptive analysis of the ecological literacy data reveals that the majority of respondents (87.21%, $n = 191$) possess a moderate level of ecological literacy. Meanwhile, the remaining 12.79% ($n = 28$) exhibit a high level of ecological literacy, and no students (0%) fall into the low category out of the total 219 respondents. This favorable distribution aligns with the findings of Santoso et al., who reported that the majority of seventh-grade students at SMPN 5 Taman, Pemalang, demonstrated a moderate level of ecological literacy (54.48%) (Santoso et al., 2021). Similarly, Prasetyo (2022) noted that tenth- and eleventh-grade science students at SMA 23 Tangerang Regency also fell within the moderate environmental literacy range (Prasetyo, 2022). Conversely, Nasution (2016) found that the ecological literacy levels of tenth-grade science students at SMA Negeri 1 and 2 in Samboja District during the 2015/2016 academic year spanned across the high and low categories (Nasution, 2016).

Based on the data in Table 5, the descriptive analysis of the understanding of Ecological Islam concepts reveals that the majority of respondents (67.58%, $n = 148$) achieve a high level of understanding. Meanwhile, 30.14% ($n = 66$) fall into the moderate category, and only a small fraction (2.28%, $n = 5$) are in the low category. Overall, these results reflect a highly favorable outcome, as the combined high and moderate categories overwhelmingly dominate the total sample of 219 respondents. These scores were obtained through the documentation of examination grades for the

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instructional theme "*Inspirations from the Qur'an: Preserving Nature, Sustaining Life*" provided by the Islamic Education (PAI) course instructors at UNIBA. This evidence demonstrates that the instructional process was effectively executed and the learning objectives for the material were successfully met.

**Assumption Testing (Prerequisite Analysis)**

This study aims to investigate the relationship between undergraduate students' understanding of Islamic Education (PAI) course content—specifically focusing on Ecological Islam concepts—and their ecological literacy at FKIP UNIBA. Prior to conducting Pearson's product-moment correlation analysis, which is a parametric statistical method, two fundamental assumption tests must be performed: normality and linearity tests. Ensuring that these assumptions are satisfied is highly critical to guaranteeing the validity of the subsequent correlation analysis. The normality test assesses whether the dataset follows a normal distribution, whereas the linearity test examines whether a linear relationship exists between the investigated variables (Pallant, 2016).

Normality Test

To determine whether the collected data follow a normal distribution, the researcher conducted a normality check utilizing the Shapiro-Wilk test. The primary objective of this normality test is to evaluate whether the residual values are normally distributed (S.S & M.B, 1965).. The statistical output of the Shapiro-Wilk test generated via the JASP application is presented in the table below:

**Table 6. Test of Normality**

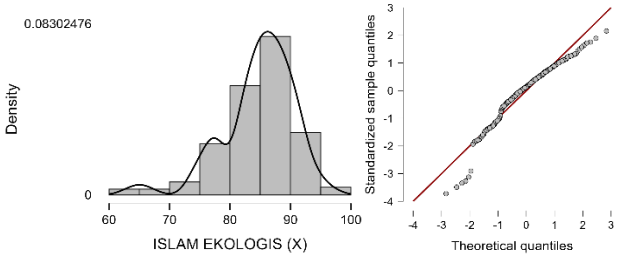
Test of Normality (Shapiro-Wilk)

| | W | p |
|---|---|---|
| Understanding of Ecological Islam (*X*) | 0.940 | < .001 |
| Ecological Literacy (*Y*) | 0.979 | .003 |

Note. Significant results suggest a deviation from normality.
Source: Primary data processed using JASP software (version 0.97).

Based on Table 6, the Shapiro-Wilk normality test results show that the variable *Understanding of Ecological Islam* yields a test statistic of 0.940 with a significance value of $p < .001$, while the *Ecological Literacy* variable exhibits a test statistic of 0.979 with a significance value of $p = .003$. Given that both significance values fall below the standard threshold of .05 ($p < .05$), the datasets for both variables are statistically classified as deviating from a normal distribution. However, these outcomes necessitate cautious interpretation due to the study's relatively large sample size ($n = 219$). Under such conditions, the Shapiro-Wilk test tends to be highly sensitive to minor deviations from normality, including the presence of outliers, thereby frequently producing a non-normal decision even when the substantive data distribution pattern closely approximates a normal curve. Consequently, the assessment of normality was supplemented by visual approaches using Distribution Plots and Normal Q-Q Plots to obtain a more comprehensive overview of the data distribution characteristics (Field, 2005).

**Figure 1. Distribution Plot and Normal Q-Q Plot**
**Understanding of Ecological Islam**




Source: Primary data processed using JASP software (version 0.97).

**Figure 2. Distribution Plot and Normal Q-Q Plot**
**Ecological Literacy**

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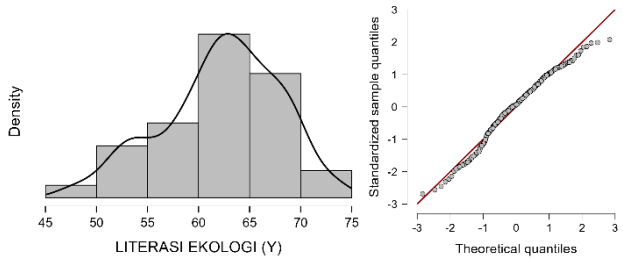


Source: Primary data processed using JASP software (version 0.97).

Based on the distribution plot and normal Q-Q plot presented in Figure 1, the data distribution for the *Understanding of Ecological Islam* variable exhibits a unimodal pattern with a slight negative skewness. This is characterized by a high concentration of scores within the upper range (80–90) and a distribution tail extending to the left. Although the distribution is not perfectly symmetrical and contains several outliers in the tail that affected the formal normality test results, the vast majority of the data points follow a consistent distributional pattern. This is further supported by the alignment of points on the normal Q-Q plot, which generally cluster along the diagonal reference line, demonstrating a close approximation to the theoretical normal distribution. Consequently, from a substantive standpoint, the residuals can be assumed to follow a normal distribution, thereby satisfying the prerequisite assumption for parametric statistical analysis (Pallant, 2016).

On the other hand, the distribution plot and normal Q-Q plot presented in Figure 2 indicate that the data distribution for the *Ecological Literacy* (*Y*) variable closely approximates a normal distribution. The data points primarily cluster within the score range of 60–68, forming a single dominant peak (unimodal). Although a slight asymmetry is visible in the tails of the distribution, the overall distribution pattern remains proportional and does not exhibit extreme deviations. This finding is further reinforced by the normal Q-Q plot, which demonstrates that the vast majority of the data points lie in close proximity to the diagonal reference line. While minor deviations occur at a few points along the extremities of the distribution, these departures remain within an acceptable threshold. Consequently, from a substantive standpoint, the dataset for the *Ecological Literacy* variable can be considered to satisfy the normality assumption, making it fully suitable for subsequent parametric statistical analysis and regression modeling (Pallant, 2016).

Linearity Test

In addition to the normality checks, a linearity test was performed to determine and confirm whether the relationship between the independent and dependent variables is linear. The criterion for linearity is established based on a significance value (*p*-value) of less than 0.05 ($p < 0.05$). If this condition is met, it can be concluded that a linear relationship exists between the independent and dependent variables. The results of the linearity test generated via JASP are presented below:

**Table 7. Test of Linearity**

*ANOVA*

| Model | | Sum of Squares | df | Mean Square | F | p |
|---|---|---|---|---|---|---|
| $M_1$ | Regression | 6863 | 1 | 6863 | 4632 | < .001 |
| | Residual | 321.5 | 217 | 1.482 | | |
| | Total | 7184 | 218 | | | |

*Note.* $M_1$ includes Understanding of Ecological Islam (X)

*Note.* The intercept model is omitted, as no meaningful information can be shown.

Source: Primary data processed using JASP software (version 0.97).

As shown in Table 7, the linearity test results indicate that the relationship between the *Understanding of Ecological Islam* and *Ecological Literacy* variables is both linear and significant. Based on the analysis of variance (ANOVA) for regression, the obtained *F*-statistic is 4632.00 ($F = 4632.00$) with a significance level of $p < 0.05$ ($p < 0.001$). This outcome demonstrates that the linear regression model significantly explains the variance in the *Ecological Literacy* variable. Consequently, the linearity assumption is fully satisfied, confirming that the relationship between the

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*Understanding of Ecological Islam* and *Ecological Literacy* can be appropriately analyzed using linear regression models in the subsequent hypothesis testing phase.

**Hypothesis Testing (Correlation Analysis)**

To evaluate the research hypothesis, a Pearson product-moment correlation analysis was conducted. This parametric test was selected to measure the strength and direction of the linear relationship between the independent variable (*Understanding of Ecological Islam*) and the dependent variable (*Ecological Literacy*). The resulting correlation matrix, computing the *r*-values and corresponding *p*-values via JASP (version 0.97), is presented below.

**Table 8. Test of Pearson Correlation**

*Pearson's Correlations*

| | | | Pearson's r | p |
|---|---|---|---|---|
| Understanding of Ecological Islam (X) | - | Ecological Literacy (Y) | 0.977*** | < .001 |

* p < .05, ** p < .01, *** p < .001

Source: Primary data processed using JASP software (version 0.97).

To evaluate the research hypothesis, a Pearson product-moment correlation analysis was conducted. This parametric test was selected to measure the strength and direction of the linear relationship between the independent variable (*Understanding of Ecological Islam*) and the dependent variable (*Ecological Literacy*). The resulting correlation matrix, computing the *r*-values and corresponding *p*-values via JASP (version 0.97), is presented below.

As illustrated in Table 8, the analysis revealed a highly significant, positive correlation between the *Understanding of Ecological Islam* and *Ecological Literacy* ($r = .977$\$, $p < .001$). Because this coefficient so closely approaches 1.0, the association between the two variables is classified as exceptionally strong ($r > .900$). Furthermore, given that the *p*-value falls markedly below the conventional alpha level of .05, the statistical evidence robustly supports the acceptance of the primary research hypothesis.

These findings suggest a profound directional alignment: as respondents' comprehension of Ecological Islam deepens, their practical ecological literacy increases proportionally. Consequently, it is evident that Islamic ecological values are inextricably woven into broader environmental awareness. This indicates that internalizing ecological principles through an Islamic theological framework acts as a powerful catalyst for elevating an individual's overall environmental literacy (Hanief & Himawanto, 2017).

## DISCUSSION

The primary objective of this study was to empirically investigate the interplay between undergraduate students' comprehension of Ecological Islam and their practical ecological literacy. As established in the preceding statistical analyses, the findings reveal an exceptionally strong positive correlation, underscoring the critical role that theological frameworks can play in shaping tangible environmental consciousness. To contextualize these empirical results within the broader discourse of environmental education and Islamic pedagogy, this section provides a comprehensive synthesis of the data. The subsequent discussion is structured to systematically evaluate the students' mastery of Ecological Islam concepts, assess their prevailing ecological literacy levels, and critically examine the intersecting dynamics between these two domains, thereby highlighting the broader implications of integrating faith-based ecological values into higher education.

Undergraduate Students' Understanding of Ecological Islam Concepts

Within the scope of this study, the understanding of Ecological Islam concepts is operationally defined as an individual's capacity to process and internalize information from the Islamic Education (PAI) course syllabus. This construct was empirically measured through students' examination performance centered on the instructional theme: *"Inspirations from the Qur'an: Preserving Nature, Sustaining Life"* The examination scores directly reflect the depth of comprehension regarding ecological Islamic principles; higher scores indicate a more profound understanding of the material, whereas lower scores denote a deficient conceptual grasp.

Incorporating eco-theological themes within the PAI curriculum underscores the foundational Islamic premise that religion encompasses not only the vertical relationship between humans and God (*habl min Allah*) and horizontal human interactions (*habl min al-nas*), but also a crucial relationship with the natural world (*habl*

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*min al-alam*). The descriptive statistical analysis generated via JASP demonstrated that the participants achieved a high level of understanding in this domain. This elevated comprehension indicates that the undergraduate students possess a solid grasp of Quranic tenets pertaining to ecology and environmental preservation, as encapsulated in Surah ar-Rum (30:41), Surah Ibrahim (14:32), and Surah az-Zukhruf (43:13).

**Undergraduate Students' Ecological Literacy Levels**

Ecological literacy in this research refers to the students' capacity to think critically, act responsibly, and foster personal and communal commitments toward cultivating a sustainable lifestyle. This multi-dimensional construct was assessed through a comprehensive ecological literacy instrument evaluating four core dimensions: (a) ecological knowledge, (b) environmental awareness, (c) cognitive skills, and (d) pro-environmental behavior. The cumulative scores serve as an indicator of the students' literacy level, where higher attainment signifies a well-developed ecological literacy, and lower scores reflect a limited understanding and commitment to environmental sustainability.

Theoretically, ecological literacy is shaped by several intersecting determinants, including: (1) personal experience, which involves the frequency and intensity of direct environmental interactions; (2) immediate environment, encompassing behavioral and cognitive proximity to environmental issues; (3) education, comprising access to information, student comprehension, semester learning plans (RPS), and instructional methodologies employed by lecturers, families, and communities; and (4) socio-cultural factors, which include cultural values, religious beliefs, and societal lifestyles (McBride et al., 2013).

The empirical descriptive analysis revealed that the majority of respondents (87.21%, $n$ = 191) possessed a moderate level of ecological literacy. Meanwhile, the remaining 12.79% ($n$ = 28) demonstrated a high level of literacy, with no participants falling into the low category. These results indicate that while the baseline ecological literacy among the target cohort is predominantly moderate, a notable segment exhibits highly advanced pro-environmental attribute.

**The Intersecting Relationship between Ecological Islam Understanding and Ecological Literacy**

Exploring the intersection between ecological literacy and the understanding of Ecological Islam concepts is conceptually anchored in the multi-faceted determinants of environmental literacy. As underscored by Boehnert, ecological literacy does not develop in a vacuum but is heavily contingent upon personal experience, immediate environments, formal education, and socio-cultural frameworks (Boehnert, 2013).

Grounded in these determinants, the pedagogical framework of Islamic Education (PAI) emerges as a vital mechanism influencing students' environmental literacy. Education serves as a structural vehicle for cognitive and behavioral transformation; hence, the integration of Ecological Islam within the PAI curriculum manifests national educational objectives aimed at elevating spiritual intelligence alongside environmental stewardship. Furthermore, religious values serve as a potent socio-cultural anchor, as Islam explicitly codifies the reciprocal responsibilities between humanity and the ecosystem (*habl min al-alam*). Consequently, optimizing students' comprehension of ecological Islamic doctrines becomes an imperative prerequisite for accelerating overall ecological literacy (Orr, 1989).

Contextualizing ecological literacy within a multidisciplinary framework that encompasses religious education is a necessary approach to addressing modern environmental crises. In practice, cultivating ecological literacy requires cross-disciplinary collaboration to generate complex, long-term solutions. This aligns seamlessly with Orr's philosophical stance that environmental literacy must be viewed holistically, asserting that "*all education is environmental education*". Viewed through this lens, PAI functions inherently as a component of ecological education, playing a strategic role in internalizing values that promote a sustainable commitment to *habl min al-alam*.

The inferential evidence substantializes this conceptual linkage, confirming a positive, exceptionally strong correlation between the two variables. To quantify the explanatory power of the independent variable, the coefficient of determination was computed by squaring the correlation coefficient ($r$ = 0.977, $r^2$ = 0.954). This indicates that 95.4% of the variance in students' *Ecological Literacy* (the dependent variable) can be statistically explained by their *Understanding of Ecological Islam* (the independent variable) (Field, 2005).

These findings corroborate and expand upon several prior studies documented in the literature. For instance, Dida (2020) demonstrated that religiosity exerts a significant positive influence on pro-environmental behavior. Similarly, Rusli (2022) observed that Islamic educational institutions often foster higher ecological literacy compared to conventional institutions, a disparity primarily attributed to the deep integration of Islamic ecological doctrines. Furthermore, the baseline moderate literacy findings align with Nisa et al. (2021), who reported that secondary school students typically fall within a moderate environmental literacy threshold.

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While this study establishes a strong correlational baseline, future research could utilize longitudinal or causal-comparative designs to further unpack the direct predictive effects of eco-theology on practical behavior. Nevertheless, by verifying this robust association, the current study serves as a foundational stepping stone for integrating contemporary environmental discourse into Islamic pedagogy. Continuous refinement of the PAI curriculum is imperative, especially given its proven potential to catalyze environmental consciousness. Effective implementation strategies for integrating eco-pedagogy within PAI have been widely explored, such as through the instructional frameworks proposed by Nailasary et al. (Asniyah Nailasariy et al., 2023) and Radino et al. (Radino & Permatasari, 2022). Ultimately, elevating the quality of PAI instruction acts as a strategic pathway toward fostering heightened environmental awareness and sustainable lifestyles among undergraduate students.

## CONCLUSION

Based on the empirical findings and comprehensive data analysis conducted in the study *"The Relationship between the Understanding of Ecological Islam and Undergraduate Students' Ecological Literacy,"* the following conclusions are established:

Moderate Baseline of Ecological Literacy: The ecological literacy of the respondents falls predominantly within the moderate category ($n$ = 219, $M$ = 62.20, $SD$ = 5.74). Specifically, the moderate category constitutes the vast majority at 87.21%, while the remaining 12.79% of students demonstrate a high level of ecological literacy.

High Mastery of Eco-Theological Concepts: The understanding of Ecological Islam concepts among the participants is classified primarily in the high category ($n$ = 219, $M$ = 84.38, $SD$ = 3.41). In detail, the high category accounts for 67.58% of the sample, followed by the moderate category at 30.14%, and a marginal fraction in the low category at 2.28%.

Exceptionally Strong Correlational Evidence: There is a highly significant, positive correlation between the Understanding of Ecological Islam and Ecological Literacy ($r$ = .977, $p$ < .01, $n$ = 219). Based on the correlation coefficient threshold, the strength of this relationship is categorized as exceptionally strong ($r$ > .900).

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