



# THE 5<sup>th</sup> SAIZU INTERNATIONAL CONFERENCE ON TRANSDISCIPLINARY RELIGIOUS STUDIES (ICONTREES)

"Beyond the Cosmos : Transdisciplinary Perspectives on Ecotheology and Global Sustainability"

## TOWARD TRANSFORMATIVE PEDAGOGICAL COMMUNICATION IN ISLAMIC EDUCATION: LINKING ECO-ANXIETY AND SPIRITUAL RESILIENCE

**Adnan Yusufi, Rohmad**

Postgraduate Program, UIN Prof. K. H. Saifuddin Zuhri Purwokerto, Indonesia

Email: [adnanyusufi1@email.com](mailto:adnanyusufi1@email.com), [rohmad@uinsaizu.ac.id](mailto:rohmad@uinsaizu.ac.id)

### **Abstract**

*This study explores the relationships among eco-anxiety, spiritual resilience, and transformative pedagogical communication within higher education contexts. The study employed a quantitative exploratory survey design involving 117 university students from Universitas Peradaban, Indonesia, representing three academic programs: Primary School Teacher Education (PGSD), Informatics, and Information Systems. Data were collected through structured questionnaires and analyzed using reliability testing, correlation analysis, and exploratory mediation analysis. The findings indicate that eco-anxiety was positively associated with transformative pedagogical communication, suggesting that students experiencing ecological concern may increasingly require reflective, emotionally supportive, and meaningful educational communication processes. Transformative pedagogical communication also demonstrated a positive relationship with spiritual resilience, indicating the potential importance of reflective and dialogic communication in supporting students' emotionally grounded coping capacities. However, the mediation analysis showed that transformative pedagogical communication did not significantly mediate the relationship between eco-anxiety and spiritual resilience. These findings suggest that students' spiritual adaptation toward ecological uncertainty may involve broader emotional, psychological, social, and spiritual dimensions beyond pedagogical communication alone. Despite the absence of statistically significant mediation effects, the study remains theoretically meaningful because it highlights the potential pedagogical relevance of reflective communication within educational responses to environmental uncertainty. Rather than proposing a definitive theoretical model, this study offers preliminary empirical insights regarding the possible significance of transformative pedagogical communication in supporting students' emotional and spiritual engagement with ecological concerns.*

**Keywords:** Eco-anxiety; Spiritual Resilience; Pedagogical Communication

### **1. INTRODUCTION**

Climate change has increasingly evolved from an environmental issue into a multidimensional psychological, social, and educational challenge affecting younger generations worldwide. Growing exposure to ecological crises, climate uncertainty, environmental degradation, and catastrophic environmental narratives has contributed to the emergence of eco-anxiety among adolescents and university students. Eco-anxiety refers to persistent feelings of fear, worry, helplessness, and emotional distress associated with environmental destruction and the anticipated consequences of climate change. Recent studies indicate that students experience moderate to high levels of ecological anxiety, which may influence emotional well-being, future orientation, academic engagement, and psychological stability (Sinan et al., 2025; Tavalacci & Ladner, 2024). In several contexts, eco-anxiety has



# THE 5<sup>th</sup> SAIZU INTERNATIONAL CONFERENCE

## ON TRANSDISCIPLINARY RELIGIOUS STUDIES (ICONTREES)

“Beyond the Cosmos : Transdisciplinary Perspectives on Ecotheology and Global Sustainability”

also been associated with emotional exhaustion, uncertainty, sleep disturbances, and depressive tendencies among young people confronting environmental concerns (Er et al., 2024).

The psychological dimensions of climate-related anxiety are particularly relevant among university students because younger generations are increasingly exposed to environmental information through digital media, public discourse, and educational environments while simultaneously perceiving themselves as vulnerable to future ecological crises. Previous studies demonstrate that eco-anxiety may manifest through feelings of tension, frustration, guilt, fear, helplessness, and existential uncertainty regarding environmental change (Silva, 2025). In climate-vulnerable societies, these emotional responses may become more complex as environmental concerns intersect with social, economic, and educational insecurities (Kaligis et al., 2024). Consequently, educational institutions are increasingly challenged not only to promote environmental awareness but also to respond to the emotional and psychological implications of ecological crises among students.

Educational discussions concerning environmental crises have therefore increasingly emphasized the importance of emotionally responsive and reflective pedagogical approaches. Environmental education can no longer be understood merely as the transmission of ecological knowledge and sustainability awareness but must also address students' emotional experiences, ethical reflection, and existential responses toward environmental uncertainty. Several recent studies suggest that emotionally engaged educational environments may help students process ecological concerns more constructively through dialogue, reflection, empathy, and participatory learning processes (Edwards et al., 2023; Olsen et al., 2024). Within this context, educational communication becomes increasingly important because students' emotional engagement with ecological issues is shaped not only by curricular content but also by communicative interaction within learning environments.

In response to these conditions, resilience has emerged as an important framework for understanding how individuals adapt to adversity and psychological distress. More specifically, spiritual resilience has gained growing scholarly attention as a meaningful coping resource that enables individuals to sustain hope, emotional balance, meaning, and psychological endurance during periods of crisis and uncertainty. Spiritual resilience refers to the capacity to maintain inner strength, spiritual meaning, and existential orientation through religious beliefs, values, and practices when facing emotionally challenging situations (Abu et al., 2026). Previous studies suggest that spirituality contributes positively to emotional regulation, coping strategies, optimism, and psychological adaptation in stressful conditions (Okan et al., 2025). Spirituality may therefore function not only as emotional comfort but also as a reflective framework through which individuals interpret crisis, uncertainty, and ethical responsibility.

Within environmental contexts, spiritual resilience may help students reinterpret ecological anxiety not merely as fear and despair but also as reflective awareness concerning responsibility, ethics, and human relationships with the environment. This perspective becomes particularly relevant within Islamic educational discourse because Islamic pedagogical traditions emphasize the integration of knowledge, ethics, spirituality, and social responsibility. Islamic educational values such as *sabr* (patience), *tawakkal* (trust in God), and *khalifah* (human stewardship of the earth) provide important moral and spiritual orientations for responding to ecological crises through reflective and value-oriented educational processes. Previous discussions concerning Islamic environmental ethics further suggest that

# THE 5<sup>th</sup> SAIZU INTERNATIONAL CONFERENCE

## ON TRANSDISCIPLINARY RELIGIOUS STUDIES (ICONTREES)

"Beyond the Cosmos : Transdisciplinary Perspectives on Ecotheology and Global Sustainability"

environmental responsibility is closely related to spiritual consciousness, moral accountability, and ethical stewardship toward creation. Nevertheless, discussions concerning eco-anxiety and students' emotional responses to climate change remain relatively underexplored within Islamic educational scholarship. Environmental education in many educational contexts continues to emphasize cognitive understanding and moral instruction while paying comparatively limited attention to students' emotional, existential, and spiritual experiences related to ecological uncertainty.

One educational dimension that may contribute to addressing these challenges is pedagogical communication. Teacher communication plays a central role in shaping students' emotional engagement, reflective awareness, and meaning-making processes within educational environments (Mai et al., 2024). Previous studies indicate that supportive and dialogic teacher-student communication may strengthen emotional engagement, self-efficacy, psychological comfort, and learning participation while reducing communication apprehension and emotional stress among students (Curran & Meyara, 2025; Yao et al., 2025). Reflective communication within educational settings may therefore facilitate emotionally meaningful learning experiences capable of helping students process ecological concerns more constructively.

In this study, transformative pedagogical communication is approached as an emerging pedagogical orientation emphasizing reflective dialogue, empathy, critical awareness, and meaningful communicative engagement within educational processes. Rather than functioning merely as instructional transmission, this communicative orientation potentially creates reflective educational spaces where students may negotiate emotional vulnerability, ethical awareness, and environmental concern through dialogic interaction and reflective meaning-making. The term transformative pedagogical communication in this study is not positioned as a fixed theoretical construct but rather as a preliminary conceptual orientation integrating reflective pedagogy, dialogic communication, emotional engagement, and value-oriented educational interaction.

Recent educational studies further suggest that transformative and emotionally engaged pedagogical approaches may contribute positively to students' resilience in confronting environmental concerns. Educational interventions integrating reflective learning, emotional engagement, participatory dialogue, and collaborative reflection have been shown to support students in processing eco-anxiety more constructively (Olsen et al., 2024). Similarly, pedagogical approaches emphasizing hope, connectedness, emotional support, and collective reflection may strengthen emotional adaptation and resilience toward climate-related uncertainty (Edwards et al., 2023). However, limited studies have specifically explored how reflective pedagogical communication may be associated with eco-anxiety and spiritual resilience within broader Islamic educational discourse, particularly among Muslim university students navigating ecological uncertainty in contemporary educational environments.

Based on these considerations, this study aims to explore the relationships among eco-anxiety, spiritual resilience, and transformative pedagogical communication within higher education contexts from the perspective of Islamic educational values. Rather than proposing a definitive theoretical formulation, this study seeks to provide preliminary exploratory insights regarding how reflective pedagogical communication may contribute to emotionally and spiritually meaningful educational responses to ecological anxiety among university students.

## 2. RESEARCH METHOD

### a. Research Design

This study employed a quantitative exploratory survey design to examine the possible relationships between eco-anxiety, spiritual resilience, and transformative pedagogical communication among university students within Islamic educational contexts. The study was positioned as an exploratory empirical inquiry rather than a definitive theory-building investigation. Accordingly, transformative pedagogical communication was approached as an emerging pedagogical perspective intended to facilitate reflective, dialogic, and emotionally meaningful educational engagement related to ecological concerns.

The exploratory orientation of this study was considered appropriate because research concerning eco-anxiety, spiritual resilience, and pedagogical communication within Islamic educational settings remains relatively limited. Therefore, the study aimed primarily to identify preliminary relational patterns among the examined variables rather than to establish a final explanatory framework.

### b. Participants

The participants consisted of university students from Universitas Peradaban, Indonesia. The respondents were recruited from three academic programs: Primary School Teacher Education (PGSD), Informatics, and Information Systems. The inclusion of students from both education and technology-related disciplines was intended to provide broader perspectives regarding ecological anxiety, spirituality, and pedagogical communication within higher education contexts.

Although Universitas Peradaban is a non-religious public-oriented higher education institution, all students are required to complete compulsory Islamic Studies and Arabic language courses as part of the institutional curriculum. This academic exposure provides students with basic engagement toward Islamic ethical and spiritual values, which remain relevant to the present study's exploration of eco-anxiety, spirituality, and reflective pedagogical communication within broader Islamic educational discourse.

Participants were selected using voluntary response sampling through online questionnaire distribution. Prior to participation, respondents were informed about the purpose of the study and the confidentiality of their responses. Participation was entirely voluntary, and no personally identifiable information was collected.

### c. Instruments

Data were collected using a structured questionnaire consisting of three main constructs: eco-anxiety, spiritual resilience, and transformative pedagogical communication. All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Eco-anxiety items were adapted to measure students' emotional concerns, worries, uncertainty, and psychological responses toward environmental crises and climate change. Spiritual resilience items focused on students perceived spiritual strength, emotional

endurance, hope, and meaning-making capacities when facing ecological uncertainty. Meanwhile, transformative pedagogical communication items were designed to explore students' perceptions of reflective, dialogic, empathetic, and meaningful communicative interactions within educational settings.

Rather than treating transformative pedagogical communication as a fixed theoretical construct, this study operationalized it as an exploratory communicative orientation derived from pedagogical communication, reflective learning, and transformative educational literature.

### d. Data Analysis

The collected data were analyzed using Jamovi statistical software. Descriptive statistical analysis was first conducted to examine participants' general responses across the measured variables. Subsequently, correlation analysis was performed to identify possible relationships among eco-anxiety, spiritual resilience, and transformative pedagogical communication.

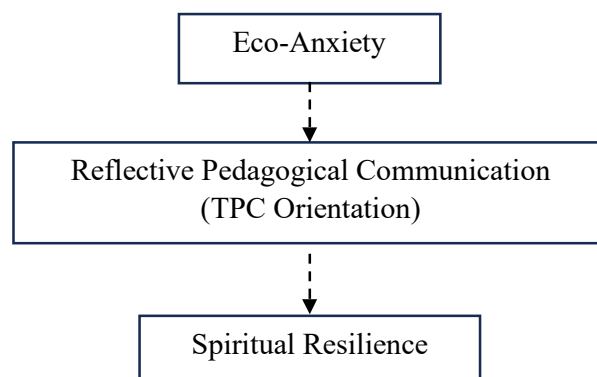
In addition, exploratory mediation analysis was conducted to examine whether transformative pedagogical communication potentially mediated the relationship between eco-anxiety and spiritual resilience. Because this study was exploratory in nature, the analysis was intended primarily to identify indicative relational tendencies rather than to confirm a definitive structural model.

### e. Exploratory Conceptual Framework

This study proposes a preliminary exploratory framework linking eco-anxiety, spiritual resilience, and transformative pedagogical communication within Islamic educational contexts. The framework assumes that students experiencing ecological anxiety may require emotionally supportive and reflective pedagogical engagement that potentially contributes to the strengthening of spiritual resilience.

However, the framework is not intended as a definitive theoretical formulation of transformative pedagogical communication. Instead, it serves as an exploratory conceptual orientation for understanding how reflective educational communication may be associated with students' emotional and spiritual responses to ecological uncertainty.

**Figure 1. Exploratory Conceptual Framework of the Study**



# THE 5<sup>th</sup> SAIZU INTERNATIONAL CONFERENCE ON TRANSDISCIPLINARY RELIGIOUS STUDIES (ICONTREES)

"Beyond the Cosmos : Transdisciplinary Perspectives on Ecotheology and Global Sustainability"

The framework illustrates a preliminary exploratory orientation suggesting that students' ecological anxiety may be associated with reflective pedagogical engagement and spiritual resilience within educational contexts. Rather than representing a definitive explanatory model, the framework serves as a conceptual guide for examining possible relational tendencies among the examined variables.

## 3. RESULT AND DISCUSSION

### a. Respondent Profile

This study involved 117 university students from Universitas Peradaban. The respondents were recruited from three academic programs: Primary School Teacher Education (PGSD), Informatics, and Information Systems. The inclusion of students from both educational and technology-related disciplines was intended to provide broader perspectives regarding ecological concern, spirituality, and pedagogical communication within higher education contexts.

The respondents represented younger generations increasingly exposed to climate-related information, environmental uncertainty, and ecological crises through educational and digital environments. The participants demonstrated varying levels of environmental concern, emotional engagement, and spiritual coping tendencies, indicating that eco-anxiety and spiritual resilience constitute relevant dimensions within contemporary student experiences.

The descriptive findings generally indicate that many respondents expressed awareness of environmental problems and acknowledged the importance of reflective and meaningful educational communication when discussing ecological issues. In addition, respondents tended to perceive spiritual values and emotionally supportive educational interactions as important elements in coping with uncertainty and environmental concern.

### b. Reliability and Correlation Analysis

Reliability analysis was conducted to examine the internal consistency of the research instruments using Cronbach's Alpha coefficients. The results indicate that all research variables demonstrated acceptable levels of reliability for exploratory educational research.

**Table 1. Reliability Analysis Results**

| Variable                                    | Number of Items | Cronbach's Alpha | Interpretation |
|---------------------------------------------|-----------------|------------------|----------------|
| 1. Eco-Anxiety                              | 5               | 0.749            | Acceptable     |
| 2. Transformative Pedagogical Communication | 5               | 0.704            | Acceptable     |
| 3. Spiritual Resilience                     | 5               | 0.708            | Acceptable     |

# THE 5<sup>th</sup> SAIZU INTERNATIONAL CONFERENCE ON TRANSDISCIPLINARY RELIGIOUS STUDIES (ICONTREES)

"Beyond the Cosmos : Transdisciplinary Perspectives on Ecotheology and Global Sustainability"

The reliability results suggest that the questionnaire items consistently measured the intended constructs and were sufficiently reliable for further statistical analysis.

Correlation analysis was subsequently conducted to examine the relationships among eco-anxiety, transformative pedagogical communication, and spiritual resilience.

**Table 2. Correlation Matrix**

| Variable                                    | 1     | 2       | 3 |
|---------------------------------------------|-------|---------|---|
| 1. Eco-Anxiety                              | -     |         |   |
| 2. Transformative Pedagogical Communication | .192* | -       |   |
| 3. Spiritual Resilience                     | -.038 | .394*** | - |

Note: \* $p < .05$ , \*\*\* $p < .001$ .

The correlation analysis indicates that eco-anxiety was positively associated with transformative pedagogical communication ( $r = .192$ ,  $p < .05$ ). This finding suggests that students experiencing higher levels of ecological concern may increasingly require reflective, emotionally supportive, and meaningful pedagogical communication processes within educational settings.

Rather than functioning merely as instructional interaction, reflective pedagogical communication may provide students with communicative spaces for emotional engagement, ethical reflection, and meaning-making regarding ecological uncertainty. This finding indicates that ecological concern may encourage students to seek more dialogic and emotionally responsive educational interactions when discussing environmental crises.

In addition, the reflective and dialogic communicative orientation conceptualized in this study as transformative pedagogical communication demonstrated a moderate positive relationship with spiritual resilience ( $r = .394$ ,  $p < .001$ ). This finding indicates that reflective and emotionally engaged educational communication may contribute positively to students' emotional adaptation and spiritually grounded coping capacities. The findings are consistent with previous studies emphasizing the importance of emotionally supportive educational communication in fostering adaptive learning experiences and emotional resilience among students (Ding & Wang, 2024; Jia & Cheng, 2024).

The findings may further suggest that students who perceive educational communication as empathetic, reflective, and meaningful also tend to demonstrate stronger spiritual endurance and emotionally adaptive orientations when confronting uncertainty and environmental concern.

However, eco-anxiety did not demonstrate a significant direct relationship with spiritual resilience ( $r = -.038$ ,  $p > .05$ ). This finding suggests that ecological concern alone may not directly determine students' spiritual resilience and that other pedagogical, psychological, social, or spiritual factors may also influence adaptive responses toward environmental uncertainty.

## c. Mediation Analysis

# THE 5<sup>th</sup> SAIZU INTERNATIONAL CONFERENCE ON TRANSDISCIPLINARY RELIGIOUS STUDIES (ICONTREES)

"Beyond the Cosmos : Transdisciplinary Perspectives on Ecotheology and Global Sustainability"

Mediation analysis was conducted to examine whether transformative pedagogical communication mediated the relationship between eco-anxiety and spiritual resilience.

**Table 3. Mediation Analysis Results**

| Effect          | Estimate | SE     | Z      | p    |
|-----------------|----------|--------|--------|------|
| Indirect Effect | 0.0705   | 0.0487 | 1.446  | .148 |
| Direct Effect   | -0.1037  | 0.0892 | -1.163 | .245 |
| Total Effect    | -0.0332  | 0.0885 | -0.375 | .708 |

The mediation analysis showed that the indirect effect of eco-anxiety on spiritual resilience through transformative pedagogical communication was not statistically significant ( $p = .148$ ). Similarly, the direct effect and total effect of eco-anxiety on spiritual resilience were also not statistically significant.

These findings indicate that the communicative orientation explored in this study under the term transformative pedagogical communication did not significantly mediate the relationship between eco-anxiety and spiritual resilience within the present sample. Although eco-anxiety was positively associated with reflective pedagogical communication and reflective pedagogical communication was positively related to spiritual resilience, the mediation pathway did not demonstrate sufficient statistical strength.

Nevertheless, the absence of a statistically significant mediation effect remains conceptually meaningful within the exploratory orientation of this study. The findings may indicate that students' spiritual resilience toward ecological uncertainty is shaped through broader emotional, social, spiritual, and psychological dimensions beyond pedagogical communication alone.

This finding also reinforces the importance of approaching transformative pedagogical communication as an emerging pedagogical orientation rather than as a fixed explanatory construct. Students' responses toward ecological anxiety may involve complex interactions among spirituality, emotional coping, environmental awareness, social support, and personal meaning-making processes that cannot be reduced into a single linear explanatory pathway.

## d. Discussion

The findings of this study highlight the increasing relevance of eco-anxiety within contemporary educational contexts, particularly among younger generations exposed to ecological uncertainty and climate-related information through digital and social environments. Environmental concern increasingly influences how students perceive uncertainty, responsibility, vulnerability, and future environmental conditions, thereby requiring educational approaches capable of addressing emotional and existential dimensions alongside cognitive understanding. This finding supports recent discussions suggesting that climate-related anxiety among young people should not merely be understood as an individual psychological problem but also as a broader educational and social challenge requiring emotionally responsive pedagogical engagement (Sinan et al., 2025; Tavolacci & Ladner, 2024).

# THE 5<sup>th</sup> SAIZU INTERNATIONAL CONFERENCE

## ON TRANSDISCIPLINARY RELIGIOUS STUDIES (ICONTREES)

“Beyond the Cosmos : Transdisciplinary Perspectives on Ecotheology and Global Sustainability”

The positive relationship between eco-anxiety and the reflective pedagogical communication orientation conceptualized in this study as transformative pedagogical communication suggests that students experiencing ecological concern may increasingly require reflective, dialogic, and emotionally supportive educational interactions. In this context, pedagogical communication appears to function not merely as instructional transmission but also as a communicative space through which students negotiate emotional uneasiness, ethical reflection, and existential uncertainty concerning environmental crises. Reflective educational communication may therefore help students process ecological concerns more constructively by facilitating emotional engagement, ethical awareness, and meaningful reflection regarding ecological instability.

This finding aligns with previous studies emphasizing the importance of emotionally engaged and reflective pedagogical approaches in responding to students' psychological experiences related to environmental crises (Edwards et al., 2023; Olsen et al., 2024). Educational environments that encourage empathy, dialogue, participatory reflection, and emotional acknowledgment may strengthen students' capacities to confront ecological uncertainty without becoming emotionally overwhelmed. Previous studies also suggest that supportive teacher-student communication may contribute positively to students' emotional comfort, self-efficacy, and adaptive engagement during stressful learning situations (Curran & Meyara, 2025; Yao et al., 2025). The present study extends these discussions by suggesting that communicative interaction may also possess relevance within environmental and existential educational concerns.

The study also suggests that reflective and dialogic pedagogical communication, conceptualized in this study through the notion of transformative pedagogical communication, is positively associated with spiritual resilience. Reflective and dialogic communication processes within educational settings appear to contribute to students' emotionally grounded coping capacities and spiritual adaptation toward uncertainty. This finding is consistent with previous resilience-oriented educational studies suggesting that emotionally supportive and meaning-oriented learning environments may strengthen students' adaptive capacities during uncertain and stressful situations (Kohli et al., 2025; Okan et al., 2025).

From the perspective of Islamic educational values, reflective pedagogical communication may facilitate spiritual reflection and ethical meaning-making concerning environmental responsibility through orientations such as *sabr* (patience), *tawakkal* (trust in God), and *khalifah* (human stewardship of the earth). Within broader Islamic educational discourse, pedagogical perspectives are often understood as emphasizing the integration of knowledge, ethics, spirituality, and social responsibility within educational processes. In this context, spirituality may function not merely as passive acceptance of ecological crises but as an active ethical and emotional resource enabling students to reinterpret uncertainty through reflective awareness, moral responsibility, and spiritually grounded resilience.

The findings further suggest that emotionally meaningful communication within educational environments may support students in developing spiritually reflective responses toward environmental concern. Dialogic educational interaction potentially creates communicative spaces where students feel emotionally acknowledged while



# THE 5<sup>th</sup> SAIZU INTERNATIONAL CONFERENCE ON TRANSDISCIPLINARY RELIGIOUS STUDIES (ICONTREES)

“Beyond the Cosmos : Transdisciplinary Perspectives on Ecotheology and Global Sustainability”

simultaneously engaging in ethical reflection regarding ecological responsibility and human relationships with nature. Such findings resonate with broader discussions concerning value-oriented education and reflective pedagogy, particularly within educational approaches emphasizing emotional engagement and existential meaning-making.

However, the mediation analysis indicates that the communicative orientation explored in this study under the notion of transformative pedagogical communication did not significantly mediate the relationship between eco-anxiety and spiritual resilience. This finding suggests that eco-anxiety alone may not sufficiently explain students’ spiritual resilience and that broader psychological, social, spiritual, and contextual dimensions may influence spiritually grounded adaptation toward ecological uncertainty.

Several possible explanations may account for this finding. First, spiritual resilience may be shaped by broader dimensions such as religiosity, personal spirituality, social support, emotional maturity, cultural orientation, and individual coping mechanisms beyond ecological concern itself. Second, eco-anxiety among students within the present sample may remain at relatively moderate levels that are insufficient to produce stronger psychological or spiritual consequences. Third, the exploratory orientation of the study and the relatively limited sample size may also contribute to the absence of statistically significant mediation effects.

Nevertheless, the absence of statistically significant mediation does not necessarily diminish the conceptual relevance of transformative pedagogical communication. Instead, the findings may indicate that students’ emotional and spiritual responses toward environmental crises involve complex and multidimensional processes that cannot be fully explained through a single linear pathway. Reflective pedagogical communication may therefore be better understood as an emerging pedagogical orientation contributing to emotionally meaningful educational engagement rather than as a definitive explanatory mechanism.

This study contributes to the growing discourse on eco-anxiety, spirituality, and education by emphasizing the importance of communicative, emotional, and reflective dimensions within educational responses toward ecological uncertainty. More specifically, the study offers preliminary empirical insights regarding how reflective pedagogical communication may possess pedagogical relevance in supporting students’ emotional engagement and spiritually grounded adaptation when confronting environmental concern. Rather than proposing a finalized theoretical formulation, the study opens exploratory discussions concerning the possible significance of transformative pedagogical communication within broader educational and ethical contexts.

## **e. Research Implications**

The findings of this study provide several implications for educational practice and environmental pedagogy. First, environmental education should not focus solely on ecological knowledge and sustainability awareness but also address students’ emotional and psychological experiences related to climate change and environmental crises.

Second, educational institutions may benefit from developing more reflective and emotionally supportive pedagogical communication approaches when discussing



# THE 5<sup>th</sup> SAIZU INTERNATIONAL CONFERENCE ON TRANSDISCIPLINARY RELIGIOUS STUDIES (ICONTREES)

“Beyond the Cosmos : Transdisciplinary Perspectives on Ecotheology and Global Sustainability”

ecological issues. Reflective dialogue, empathetic interaction, and meaning-oriented communication may help students engage with environmental concerns more constructively.

Third, discussions concerning environmental uncertainty may also be integrated with reflective ethical and spiritual learning processes that encourage students to develop emotional endurance, existential awareness, and socially responsible environmental perspectives.

## **f. Limitations**

This study has several limitations. First, the study employed a convenience sampling technique involving students from a single higher education institution, which may limit the generalizability of the findings. Second, the research was exploratory in nature and intended to provide preliminary empirical insights rather than establish a definitive theoretical explanation.

Third, the mediation relationship examined in this study was not statistically significant, indicating that additional variables and broader contextual factors may need to be considered in future studies. Future research may therefore involve larger samples, different educational contexts, and qualitative or mixed-method approaches to explore more deeply how transformative pedagogical communication is socially constructed and experienced within educational environments.

## **4. CONCLUSION**

This study explored the relationships among eco-anxiety, spiritual resilience, and transformative pedagogical communication within higher education contexts. The findings indicate that eco-anxiety is positively associated with transformative pedagogical communication, while transformative pedagogical communication is positively related to spiritual resilience. These findings suggest that students experiencing ecological concern may increasingly require reflective, emotionally supportive, and meaning-oriented educational communication processes when confronting environmental uncertainty.

However, the mediation analysis demonstrated that transformative pedagogical communication did not significantly mediate the relationship between eco-anxiety and spiritual resilience. This finding indicates that students' spiritually grounded adaptation toward ecological uncertainty may involve broader emotional, psychological, social, and spiritual dimensions beyond pedagogical communication alone.

Despite the absence of statistically significant mediation effects, the study remains theoretically meaningful because it highlights the potential pedagogical relevance of reflective and dialogic communication within discussions concerning eco-anxiety and students' emotional adaptation. In this context, transformative pedagogical communication should not be understood as a fixed explanatory construct but rather as an emerging pedagogical orientation that may contribute to emotionally and spiritually meaningful educational engagement.

# THE 5<sup>th</sup> SAIZU INTERNATIONAL CONFERENCE

## ON TRANSDISCIPLINARY RELIGIOUS STUDIES (ICONTREES)

"Beyond the Cosmos : Transdisciplinary Perspectives on Ecotheology and Global Sustainability"

The study also contributes to the growing discourse on eco-anxiety and education by emphasizing the importance of communicative, emotional, and reflective dimensions within educational responses toward environmental uncertainty. From the perspective of Islamic educational values, reflective pedagogical communication may provide meaningful spaces for ethical awareness, spiritual reflection, and emotionally grounded environmental responsibility.

Finally, this study offers preliminary empirical insights rather than a definitive theoretical formulation. Future studies may therefore further explore how transformative pedagogical communication is socially constructed, experienced, and negotiated within educational interactions through qualitative, interpretive, or mixed-method approaches across broader educational contexts.

### REFERENCES

- Abu, H., Oyedotun, O., Bey, G., Thompson, T., Main, Z., Dunderdale, C., Khan, L., Hutton, S., Salmoirago, E., Gurwitz, J. H., Dosa, D., Kapoor, A., & Puchalski, C. (2026). Spirituality and Religiosity as Sources of Resilience in Older Adults With Chronic Illness: A Mixed Methods Systematic Review. *Journal of the American Geriatrics Society*. <https://doi.org/10.1111/jgs.70293>
- Curran, T., & Meyara, S. B. (2025). Communication Apprehension and Cognitive Engagement in the Classroom for Undergraduate Students: The Mediating Role of Stress. *Communication Reports*, 1–12. <https://doi.org/10.1080/08934215.2024.2438060>
- Ding, N., & Wang, Y. (2024). Towards the Implications of Positive Teacher Interpersonal Behaviors for Spanish Learners' Academic Engagement: Voices from Chinese SFL Learners. *Heliyon*. <https://doi.org/10.1016/j.heliyon.2024.e31078>
- Edwards, R. C., Larson, B. M. H., & Clayton, S. D. (2023). Navigating eco-anxiety and eco-detachment: educators' strategies for raising environmental awareness given students' disconnection from nature. *Environmental Education Research*. <https://doi.org/10.1080/13504622.2023.2286929>
- Er, S., Murat, M., Ata, E. E., K  se, S., & Buzlu, S. (2024). Nursing students' mental health: How does eco-anxiety effect? *International Journal of Mental Health Nursing*. <https://doi.org/10.1111/inm.13320>
- Jia, M., & Cheng, J. (2024). Effect of teacher social support on students' emotions and learning engagement: a U.S.-Chinese classroom investigation. *Humanities & Social Sciences Communications*, 11, 1–9. <https://doi.org/10.1057/s41599-024-02634-0>
- Kaligis, F., Wangge, G., Fernando, G., Palguna, I. B. N. A., Pramartirta, B., & Purba, N. V. T. (2024). Breaking the silence: unveiling the intersection of climate change and youth mental health in Indonesia. *Medical Journal of Indonesia*, 32(4), 249–253. <https://doi.org/10.13181/mji.bc.247147>



# THE 5<sup>th</sup> SAIZU INTERNATIONAL CONFERENCE ON TRANSDISCIPLINARY RELIGIOUS STUDIES (ICONTREES)

“Beyond the Cosmos : Transdisciplinary Perspectives on Ecotheology and Global Sustainability”

- Kohli, A., Igras, S., Ramirez, L., Kohli, A., Igras, S., & Ramirez, L. (2025). Mind the gap: bringing adolescents and young adults and emotional resilience into climate action. *Frontiers in Climate*, 7. <https://doi.org/10.3389/fclim.2025.1657851>
- Mai, X., Leng, L., & Zhang, L. J. (2024). An idiodynamic study on students’ negative emotions in relation to instructor clarity and non-verbal immediacy in a CLIL classroom. *Innovation in Language Learning and Teaching*, 1–17. <https://doi.org/10.1080/17501229.2024.2431725>
- Okan, N., Aahin, Y., GEN, H., & Demirhan, M. (2025). Harnessing spiritual coping to foster resilience: insights from post-trauma mental health after the Kahramanmara earthquake. *Humanities & Social Sciences Communications*, 12(1). <https://doi.org/10.1057/s41599-025-05318-5>
- Olsen, E. K., Lawson, D. F., McClain, L. R., & Plummer, J. D. (2024). Heads, hearts, and hands: a systematic review of empirical studies about eco/climate anxiety and environmental education. *Environmental Education Research*. <https://doi.org/10.1080/13504622.2024.2315572>
- Silva, R. R. da. (2025). Eco-anxiety in Brazilian and Portuguese university students: perceptions, emotions and coping strategies. *International Journal of Sustainability in Higher Education*. <https://doi.org/10.1108/ijshe-09-2024-0602>
- Sinan, M. T., Ayhan, C. H., Akta, M. C., Yildirim, S. A., & Aslan, K. (2025). Eco-anxiety and Psychosocial Problems: A Systematic Review. *European Psychiatry*, 68(S1), S927–S928. <https://doi.org/10.1192/j.eurpsy.2025.1880>
- Tavolacci, M., & Ladner, J. (2024). Eco-anxiety: an additional burden for university students? *European Journal of Public Health*, 34(Supplement\_3). <https://doi.org/10.1093/eurpub/ckae144.1352>
- Yao, N., Yang, L., & Mutlu, A. K. (2025). Teacher Interpersonal Behaviours, Communication Apprehension, Self-efficacy and Academic Engagement in Technology-mediated EFL Classrooms: A Cross-sectional Study of Mongolian Trilingual Learners. *European Journal of Education*. <https://doi.org/10.1111/ejed.70397>