



PROCEEDING

International Conference on
Innovation of Science and Social Studies

E-ISSN: 3164-5240

Volume : 1 | Issue: 2 | September 2026



THE EFFECT OF STUDENT ENGAGEMENT AND ENVIRONMENTAL AWARENESS ON STUDENT PARTICIPATION IN GREEN CAMPUS INITIATIVES: EVIDENCE FROM A BUSINESS FACULTY IN EASTERN INDONESIA

Santi Palias¹, Marwan Man Soleman²

*Santipalias04@gmail.com¹ marwan.s@unkhair.ac.id²

*Faculty of Economics and Business, Universitas Khairun, Ternate, Indonesia

ARTICLE INFO:

Article history:

Received: 15 July 2026

Accepted: 21 August 2026

Published: 15 Sept 2026

Keywords:

student engagement;
environmental awareness; green
campus; sustainable
participation; higher education
sustainability; pro-
environmental behaviour;
business students

ABSTRACT

Higher education institutions are increasingly adopting green campus initiatives to advance the Sustainable Development Goals, but student participation is often suboptimal despite the availability of environmentally oriented facilities and programs. Previous research has generally examined student engagement and environmental awareness as separate predictors, leaving their combined influence, particularly among students in non-environmental disciplines such as economics and business, largely unexplored. This study examines the partial and simultaneous effects of student engagement and environmental awareness on participation in green campus initiatives among students at the Faculty of Economics and Business, Khairun University, Indonesia. A quantitative exploratory design was employed using a structured Likert-scale questionnaire distributed to respondents selected through stratified random sampling across the departments of Management, Accounting, and Development Economics. Data were analyzed using multiple linear regression in SPSS. Both student

engagement and environmental awareness were found to significantly and positively predict student participation. Both predictors, when combined, explained a significant portion of the variance in participation, as demonstrated by the statistically significant regression model. This study offers new and simultaneous evidence on engagement and awareness among business students, a population whose curricula still lack sustainability content. Faculty should combine sustainability integration in the curriculum or extracurricular activities with experiential engagement opportunities to strengthen green campus participation among non-environmental disciplines.

INTRODUCTION

1.1 Background

Rapid global environmental change and the urgency of the SDGs have prompted higher education institutions to actively engage in sustainability transitions, positioning students as key agents of change (Kioupi & Voulvoulis, 2019; Lozano et al., 2015). The concept of the green campus has emerged as an institutional response that integrates waste management, energy efficiency, and community participation into sustainability strategies (Pereira Ribeiro et al., 2021). Universities are expected to not only teach environmental theory but also cultivate

environmentally literate citizens who translate knowledge into behavioral change (Handoyo et al., 2021; Mkumbachi et al., 2020).

Despite institutional commitment, student participation in green campus programs is often inadequate, even as measurement frameworks for green campus implementation are increasingly available (Babu & Krishna, 2026). Evidence from Indonesian universities links low participation to inadequate environmental education, weak empowerment strategies, and underdeveloped green infrastructure (Bakaruddin et al., 2022; Leal Filho et al., 2024; Rachmadian et al., 2024). However, once implemented, these programs are associated with measurable improvements in students' environmental behavior (Yantika et al., 2024). Similarly, green spaces and structured conservation practices are associated with increased pro-environmental attitudes (Ngabekti, 2021), and participatory interventions such as campaigns, training, and community service can strengthen ecological awareness (Fatika & Bahari, 2024). This gap between commitment and participation is not unique to Indonesia; it has also been documented among students in Romania (Tudorie et al., 2020). This gap is particularly pronounced in the Faculty of Economics and Business, where the curriculum prioritizes organizational and financial competencies over environmental content (Ramírez-Franco et al., 2025). Therefore, the Faculty of Economics and Business, Khairun University, is a relevant setting to examine how participation emerges without curriculum reinforcement.

1.2 Research Objectives

This study aims to examine the partial and simultaneous effects of student engagement and environmental awareness on student participation in green campus initiatives among students of the Faculty of Economics and Business, Khairun University. Specifically, this study aims to: (1) examine the effect of student engagement on student participation in green campus initiatives; (2) examine the effect of environmental awareness on student participation in green campus initiatives; and (3) examine the simultaneous effects of student engagement and environmental awareness on student participation in green campus initiatives.

1.3 Literature Review

Green campus participation is conceptualized as a form of collective and sustainable pro-environmental behavior that encompasses academic, operational, and decision-making dimensions related to campus sustainability (Ferreira et al., 2020). Roy (2023) frames this participation through the Theory of Planned Behavior (Ajzen, 1991), where attitudes, subjective norms, and perceived behavioral control collectively shape behavioral intentions and subsequent actions.

Student engagement encompasses behavioral, emotional, and cognitive energies directed toward academic and campus life, grounded in the student engagement framework. Kuh (2009) argues that the quality and quantity of students' investments in the institutional environment determine developmental outcomes, a view elaborated by the engagement and self-determination

perspective, which positively perceives engagement as shared behavior and motivation (Wei Mun et al., 2024). Empirical evidence supports a positive relationship between engagement and participation: Al-Dmour (2023) reports that green campus initiatives increase engagement through participation in activities such as waste management, while Leal Filho et al. (2024) position engaged students as informal change agents whose engagement with sustainability frameworks strengthens participatory behavior. Participatory pedagogies such as service-based learning also deepen engagement even amidst the rapid digital transition in higher education (Aramburuzabala et al., 2024; Bond et al., 2020). This relationship between engagement and outcomes extends beyond higher education: work engagement mediates the effect of teamwork on employee performance (Lukman et al., 2024) and interacts with leadership and organizational justice in shaping innovative work behavior (Sabuhari et al., 2025), offering cross-domain support for engagement as a key behavioral driver.

Environmental awareness reflects the depth of knowledge, attitudes, and responsibility toward ecological issues (Sugiarto & Gabriella, 2020). It is based on the Values-Beliefs-Norms framework, which explains pro-environmental behavior as a product of internalized ecological values, beliefs about consequences, and personal moral norms (Stern, 2000). Cross-national evidence supports this: curricular and extracurricular activities increase environmental awareness among university students (Yildiz & Budur, 2019); similar increases have been documented among education students in the Philippines (Lualhati et al., 2018) and among students and staff at a Swiss university (Hansmann et al., 2020). Individual differences are also important, with locus of control shaping the relationship between pro-environmental attitudes and behavior (Musannip et al., 2022). At the institutional level, sustainability functions as a dynamic organizational capability that requires deliberate leadership development (Amui et al., 2017; Iqbal & Ahmad, 2021). Rachmadian et al. (2025) found that engagement with green campus activities increases awareness through educational mechanisms, while Chen et al. (2025) demonstrated that institutional sustainability policies shape green intentions through environmental education.

Because engagement provides the behavioral and social infrastructure for collective action, while awareness provides its normative and cognitive justification, the two constructs theoretically operate in a complementary manner. Benzehaf et al. (2025) found that environmental awareness mediates the relationship between engagement and pro-environmental behavior. Zsóka et al. (2013) showed that environmental knowledge, attitudes, and everyday pro-environmental behavior jointly predict sustainable environmental action, and Ferreira et al. (2020) argued that universities function as “living laboratories” that achieve stronger sustainability outcomes when engagement and awareness-building operate simultaneously.

1.4 Problem Statement

Most previous studies have examined student engagement and environmental awareness separately, or focused on faculties such as geography and environmental science education where sustainability content is curricularly integrated (Hawa et al., 2021; Winarto et al., 2023). A non-

trivial knowledge-behavior gap also persists, with many students possessing adequate environmental knowledge without translating it into consistent participatory behavior (Islamiati & Saputra, 2021). While awareness and engagement are essential, participation is also crucial when carried out simultaneously, rather than separately, particularly among business students in the context of the eastern Indonesian archipelago, which is considered still rare. Therefore, this study addresses: (1) Does student engagement significantly influence student participation in green campus initiatives? (2) Does environmental awareness significantly influence student participation in green campus initiatives? and (3) Do student engagement and environmental awareness simultaneously and significantly influence student participation in green campus initiatives among students of the Faculty of Economics and Business, Khairun University?

1.5 Research Contributions

This study offers several contributions. First, it extends the student engagement framework (Kuh, 2009) and the Values-Beliefs-Norms framework (Stern, 2000) to the context of non-environmental disciplines. Second, it empirically grounds a participation model framed through the Theory of Planned Behavior (Ajzen, 1991; Roy, 2023), extending previous applications beyond entrepreneurial intentions among students to pro-environmental participation (Su et al., 2021). This study utilizes discipline-specific data from a business faculty largely absent from the existing literature. Practically, these findings aim to inform faculty-level policies on strengthening student participation in sustainability initiatives among non-environmental disciplines and to broaden the empirical basis linking engagement and awareness to participatory outcomes in the context of higher education in eastern Indonesia.

METHODE

3.1 Research Design

This study uses a quantitative explanatory design to test the hypothesis of a causal relationship between student engagement, environmental awareness, and green campus participation in accordance with standard procedures for quantitative research that examines causal and associative relationships between variables (Taherdoost, 2016). The explanatory design was chosen because this study aims not only to describe the three constructs but also to explain and test the partial and simultaneous effects of two independent variables, namely student engagement (X1) and environmental awareness (X2), on one dependent variable, namely student participation in green campus initiatives (Y). This study was conducted at the Faculty of Economics and Business, Khairun University, Ternate, Indonesia.

3.2 Population and Sample

The population consisted of all undergraduate students of the 2022 intake from three departments at the Faculty of Economics and Business, Khairun University: Management (221), Accounting (223), and Development Economics (66), totaling 510 students. A stratified random sampling technique ensured proportional representation across departments (Taherdoost, 2022a). Applying the Slovin formula, the sample size was set at a minimum of 100 respondents to ensure adequate representation for multiple linear regression analysis. Proportional allocation across strata resulted in 40 respondents from Management (40%), 35 from Accounting (35%), and 25 from Development Economics (25%), for a total sample of 100.

3.3 Data Collection Techniques and Instrument Development

Primary data were collected through a structured questionnaire administered directly to respondents (Taherdoost, 2022b), using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Student participation in green campus initiatives (Y) was measured through nine items reflecting participatory intentions, concrete pro-environmental actions, and perceived behavioral control (Roy, 2023). Student engagement (X1) was measured through nine items reflecting academic participation, social participation, and emotional commitment (Muhamad Noor et al., 2024). Environmental awareness (X2) was measured through seven items reflecting environmental knowledge, attitudes, and pro-environmental behavior (Aquan et al., 2025). Prior to use, the instrument underwent validity testing through item-total correlation (valid if $r > 0.30$) and reliability testing through Cronbach's alpha (reliable if $\alpha > 0.60$) (Taber, 2018) to ensure each indicator item consistently and accurately measures the intended construct.

3.4 Data Analysis Techniques

Data were analyzed using multiple linear regression in SPSS, following the model $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + e$, where Y denotes participation in green campus initiatives, X1 denotes student engagement, X2 denotes environmental awareness, α is a constant, β_1 and β_2 are the regression coefficients for X1 and X2 respectively, and e is the error term. Prior to hypothesis testing, classical assumption tests confirmed the suitability of the ordinary least squares estimator, which includes normality of residuals, multicollinearity (through tolerance values and Variance Inflation Factors), and heteroscedasticity (through Glejser's method). Hypotheses were then tested through partial t-tests (individual effects of each independent variable), simultaneous F-tests (joint effects of both independent variables), and coefficient of determination (R^2) (proportion of variance in participation explained by the model), all evaluated at $\alpha = 0.05$.

RESULT AND DISCUSSION

Result

4.1 Respondent Profile

Of the 100 questionnaires distributed, all were returned and deemed usable for analysis (response rate = 100%). Respondents were drawn from three departments according to the sampling design proportions: Management (40%), Accounting (35%), and Development Economics (25%), all from the class of 2022. The sample consisted of 34 male respondents (34%) and 66 female respondents (66%). Regarding previous involvement in green campus activities, 59% of respondents reported previous participation in waste management activities, 24% in environmental care campaigns or initiatives, and 17% in energy conservation activities.

4.2 Descriptive Statistics of Variables

Descriptive analysis of the items showed that green campus participation (Y) obtained an overall mean of 4.18 (category “good” in the interpretation range of 3.4–4.2), student engagement (X1) obtained an overall mean of 4.30 (category “very good” in the range of 4.2–5.0), and environmental awareness (X2) obtained an overall mean of 4.11 (category “good”). These results indicate that respondents consistently reported favorable levels of engagement, awareness, and participatory behavior, with engagement showing the strongest average support among the three constructs and environmental awareness relatively the weakest.

4.3 Validity and Reliability

The item-total correlations for all indicators Y (0.501–0.763), X1 (0.650–0.742), and X2 (0.745–0.815) exceeded the threshold of 0.30, confirming the validity of the instrument. Cronbach's alpha coefficients were 0.847 for Y, 0.873 for X1, and 0.882 for X2, all exceeding the reliability threshold of 0.60 (Taber, 2018), indicating high internal consistency across the three measurement scales.

Table 1. Summary of Validity and Reliability Test Results

Variable	Number of Items	Item-Total Correlation Range	Validity Status	Cronbach's Alpha	Reliability Status
Green campus participation (Y)	9	0.501 - 0.763	Valid	0.847	Reliable
Student engagement (X1)	9	0.650 - 0.742	Valid	0.873	Reliable
Environmental awareness (X2)	7	0.745 - 0.815	Valid	0.882	Reliable

Source: Primary data processed (2026).

4.4 Classical Assumption Tests

The histogram of residuals approximates a normal distribution; given the sample size ($N = 100$), the assumption of normality is considered met for regression purposes. Multicollinearity diagnostics indicate a tolerance value of 0.529 for X_1 and X_2 , with a corresponding VIF value of 1.890, both within acceptable thresholds (tolerance > 0.10 ; VIF < 10.00 ; O'Brien, 2007), confirming the absence of problematic multicollinearity between the two predictors. Glejser's heteroscedasticity test yielded insignificant coefficients for X_1 and X_2 (both $p > 0.05$), confirming the homoscedasticity of the residuals.

Table 2. Summary of Classical Assumption Test Results

Test	Variable	Statistic	Criterion	Conclusion
Multicollinearity	Student engagement (X_1)	Tolerance = 0.529; VIF = 1.890	Tolerance > 0.10 ; VIF < 10.00	No multicollinearity
Multicollinearity	Environmental awareness (X_2)	Tolerance = 0.529; VIF = 1.890	Tolerance > 0.10 ; VIF < 10.00	No multicollinearity
Heteroscedasticity (Glejser)	Student engagement (X_1)	$B = -0.058$; $t = -1.073$; sig. = 0.286	sig. > 0.05	Homoscedastic
Heteroscedasticity (Glejser)	Environmental awareness (X_2)	$B = 0.002$; $t = 0.037$; sig. = 0.971	sig. > 0.05	Homoscedastic
Normality	Residual	Histogram approximates a normal curve ($N = 100$)	Approximate normal shape	Normality assumption satisfied

Source: Primary data processed (2026).

4.5 Multiple Regression Results

The multiple linear regression analysis produced the following estimated equation:

$$Y = 8.730 + 0.367X_1 + 0.362X_2$$

The constant ($\alpha = 8.730$) indicates that with both student engagement and environmental awareness equal to zero, the predicted participation rate is 8.730. The regression coefficient for student engagement ($\beta_1 = 0.367$) indicates that a one-unit increase in engagement is associated with a 0.367-unit increase in participation, holding environmental awareness constant. Similarly, the coefficient for environmental awareness ($\beta_2 = 0.362$) indicates that a one-unit increase in awareness is associated with a 0.362-unit increase in participation, holding engagement constant. Both unstandardized coefficients have positive signs consistent with the hypothesized direction.

Table 3. Multiple Linear Regression Coefficients

Model	B	Std. Error	Beta (Standardized)	T	Sig.
(Constant)	8.730	2.322	-	3.760	0.001
Student engagement (X1)	0.367	0.078	0.444	4.700	0.001
Environmental awareness (X2)	0.362	0.096	0.357	3.779	0.001

Source: Primary data processed (2026).

4.6 Hypothesis Testing

In the partial test, student engagement yielded a t-count = 4.700 ($p = 0.001$), exceeding the t-table = 1.984 ($df = 97$, $\alpha = 0.05$), supporting H1. Environmental awareness yielded a t-count = 3.779 ($p = 0.001$), also exceeding the t-table = 1.984, supporting H2. Both standardized coefficients ($\beta = 0.444$ for engagement; $\beta = 0.357$ for awareness) indicated that engagement had a slightly stronger partial effect than awareness.

In the simultaneous test using the ANOVA F test, the F-count = 57.401 ($p = 0.001$) was obtained, substantially exceeding the F-table = 3.09, which confirms that student engagement and environmental awareness jointly and significantly predict participation, thus supporting H3.

The coefficient of determination shows that the model produces an R^2 of 0.542 and an adjusted R^2 of 0.533, indicating that student engagement and environmental awareness together explain 53.3% of the variance in green campus participation, with the remaining 46.7% being due to factors outside the model.

Table 4. Summary of Hypothesis Testing

Test	Variable	Value	Comparison Value	Sig.	Decision
Partial (t)	X1	t = 4.700	t-table = 1.984	0.001	H1 supported
Partial (t)	X2	t = 3.779	t-table = 1.984	0.001	H2 supported
Simultaneous (F)	X1, X2 -> Y	F = 57.401	F-table = 3.09	0.001	H3 supported
Coefficient of determination	-	$R^2 = 0.542$	Adjusted $R^2 = 0.533$	-	53.3% variance explained

Source: Primary data processed (2026).

DISCUSSION

5.1 Student Engagement and Green Campus Participation

The findings indicate that student engagement positively and significantly predicts green campus participation ($\beta = 0.444$, $p = 0.001$) confirming H1, consistent with Kuh's (2009) research framework of student engagement, which states that the behavioral and psychological energy students invest in institutional life directly determines developmental and behavioral outcomes.

With a mean score of 4.30, engagement scored better than the other two constructs, indicating that respondents have pursued informal and extracurricular channels, such as academic discussions, social organizations, and emotional identification with campus values, through which they channel their participatory energy even though the faculty has not fully incorporated curricular sustainability content, consistent with evidence that service learning and similar co-curricular activities foster soft skills and engagement even outside of formal courses (Hébert & Hauf, 2015).

These results align with those of Al-Dmour (2023), who found that green campus initiatives strengthen student engagement, which then mediates participation in sustainability activities such as waste management and green transportation, and those of Leal Filho et al. (2024), who considered students as informal change agents whose engagement with SDG-aligned institutional frameworks strengthens participatory behavior. The large standardized effect size observed here ($\beta = 0.444$) suggests that, particularly among business students, engagement plays a proportionally larger role than in majors where sustainability is already embedded in the curriculum, as it partially substitutes for the formal environmental instruction these students lack.

5.2 Environmental Awareness and Green Campus Participation

Environmental awareness also had a significant positive effect ($\beta = 0.357$, $p = 0.001$), supporting H2 and reinforcing the logic that values, beliefs, and norms articulated by internalized ecological values and beliefs about environmental consequences generate personal norms that motivate action (Stern, 2000). With a mean score of 4.11, awareness scored the lowest of the three constructs. This is consistent with the broader literature documenting a continuing awareness gap that needs to be adequately addressed (Islamiati & Saputra, 2021).

These results are also consistent with Rachmadian et al. (2025), who showed that engagement with green campus infrastructure increases awareness, which then drives participatory behavior. Chen et al. (2025), whose findings indicate that institutional sustainability policies shape green intentions primarily through the mediation channel of environmental education. Overall, these findings suggest that awareness does not serve as a direct trigger for behavior, but rather as a cognitive and normative foundation that must be actively fostered by participation-oriented interventions, particularly among students whose curricula have not fully exposed them to environmental content.

5.3 Simultaneous Effect and Model Explanatory Power

Simultaneous testing confirmed that engagement and awareness jointly predicted participation ($F = 57.401$, $p = 0.001$), supporting H3, with an R^2 of 0.533, indicating that slightly more than half of the variance in participation can be attributed to these two constructs. This magnitude is consistent with Zsóka et al. (2013), who also found that environmental knowledge, attitudes, and behavior operate jointly to predict sustainable pro-environmental actions. Ferreira et

al. (2020), within a “living laboratory” framework, showed that universities achieve stronger sustainability outcomes when structured engagement and awareness-building among students.

The standardized coefficients for engagement (0.444) and awareness (0.357) and the absence of multicollinearity ($VIF = 1.890$ for both predictors) indicate distinct and complementary variances in participatory behavior. This supports the premise that engagement provides the behavioral and social infrastructure for participation, while awareness provides its normative justification (Bakaruddin et al., 2022; Leal Filho et al., 2024). The remaining 46.7% unexplained variance suggests that other unmodeled factors such as perceived behavioral control, subjective norms, external incentives, or institutional support structures (Roy, 2023) require further empirical attention.

6. CONCLUSION

The results showed that student engagement and environmental awareness each exerted a positive and significant partial effect on participation, and that both constructs jointly and significantly predicted participation, explaining a significant portion of its variance. These findings confirmed all three hypotheses (H1, H2, H3) and suggested that participation in green campus initiatives among business students is best understood as a combined product of behavioral investment in campus life and internalized environmental values, rather than either factor operating in isolation.

6.1. Theoretical Implications

This study contributes to the sustainability literature in higher education in three ways. First, it provides simultaneous and separate empirical evidence on the partial and joint predictive roles of student engagement and environmental awareness. Second, by extending Kuh's (2009) student engagement framework and Stern's (2000) Values-Beliefs-Norms framework to non-environmental disciplines, it demonstrates that both frameworks retain explanatory power even when sustainability is not embedded in the curriculum, demonstrating their applicability beyond environmentally oriented student populations. Third, it builds on participation models such as Roy's (2023) model, which is framed through the Theory of Planned Behavior (Ajzen, 1991), by demonstrating the antecedents of these behavioral and normative models using discipline-specific data from business faculty.

6.2. Practical Implications

The findings suggest that strengthening green campus participation requires interventions that simultaneously address both engagement and awareness. For the Faculty of Economics and Business, the Faculty could consider incorporating structured sustainability content into orientation programs, student organization activities, and extracurricular initiatives, including digital platforms such as institutional repositories that expand access to sustainability-related resources beyond the classroom to compensate for the lack of environmental content in formal

business curricula (Mahalingam et al., 2025). Because internship experiences and self-efficacy strengthen students' employability and competency, incorporating sustainability-themed internships or practicums could offer a further avenue through which engagement translates into lasting competency (Putri et al., 2024). Because engagement exerts a slightly stronger effect than awareness, priority could be given to expanding participatory opportunities, student-led sustainability projects, green campaigns, and volunteer schemes that enable students to translate existing awareness into concrete actions. For students, these findings underscore that awareness alone is unlikely to translate into consistent participatory behavior without active involvement in campus life; therefore, students are encouraged to seek organizational and social pathways through which environmental concerns can be realized. For university leaders, the results of this study support allocating resources to green infrastructure combined with structured engagement mechanisms, rather than separate awareness campaigns, as a more effective pathway to sustainability participation across the institution.

6.3. Limitations and Future Research

Several limitations should be considered. First, the sample was limited to a single faculty at a single university in eastern Indonesia, thus limiting generalizability to other disciplinary or institutional contexts. Second, the model explained 53.3% of the variance in participation, leaving a significant portion attributable to unmeasured constructs such as perceived behavioral control, subjective norms, or institutional incentive structures (Roy, 2023); future research should incorporate these as additional predictors or mediators. Third, the reliance on self-reported Likert-scale data introduces the potential for social desirability bias, particularly for behavioral items describing pro-environmental actions. Future studies could triangulate self-report data with observational or administrative participation records, expand the model to compare business students with environmentally oriented disciplines, and test the moderating role of gender, prior green campus exposure, or departmental affiliation, given the demographic variation observed in the current sample.

REFERENCES

- Ahmed, S. K. (2023). Green university initiatives and undergraduates' reuse intention for environmental sustainability: The moderating role of environmental values. *Environmental Challenges*, 13, 100797. <https://doi.org/10.1016/j.envc.2023.100797>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Al-Dmour, H. (2023). Green-smart university campuses: The mediating role of student engagement in enhancing corporate image. *SAGE Open*, 13(4). <https://doi.org/10.1177/21582440231219591>
- Amui, L. B. L., Jabbour, C. J. C., de Sousa Jabbour, A. B. L., & Kannan, D. (2017). Sustainability as a dynamic organizational capability: A systematic review and a future agenda toward a sustainable transition. *Journal of Cleaner Production*, 142, 308–322.



PROCEEDING

International Conference on
Innovation of Science and Social Studies

E-ISSN: 3164-5240

Volume : 1 | Issue: 2 | September 2026



- <https://doi.org/10.1016/j.jclepro.2016.07.103>
- Aquan, H. M., Handoyo, L. D., & Priantoro, A. T. (2025). Exploring the environmental awareness: Knowledge, attitudes, and behaviors in Indonesia's academic community. *Jurnal Pendidikan Biologi Indonesia*, 11(1), 218–227. <https://doi.org/10.22219/jpbi.v11i1.39505>
- Aramburuzabala, P., Culcasi, I., & Cerrillo, R. (2024). Service-learning and digital empowerment: The potential for the digital education transition in higher education. *Sustainability*, 16(6), 2448. <https://doi.org/10.3390/su16062448>
- Babu, G. N., & Krishna, K. V. S. G. M. (2026). A quantitative framework for green auditing in higher education institutions: Development and campus-level application. *Environmental Reports*, 8(1). <https://doi.org/10.51470/ER.2026.8.1.136>
- Bakaruddin, B., Rahayu, N. I., & Aligusri, J. (2022). Strategi pemberdayaan untuk meningkatkan partisipasi civitas akademika dalam penerapan kampus hijau di Universitas Muhammadiyah Riau (UMRI). *Jurnal Akuntansi dan Ekonomika*, 12(1), 45–53. <https://doi.org/10.37859/jae.v12i1.3455>
- Benzehaf, B., Razkane, H., & Benzehaf, O. (2025). Exploring university students' perceptions and engagement in environmental awareness and sustainable practices. *Discover Environment*, 3, 247. <https://doi.org/10.1007/s44274-025-00462-w>
- Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2020). Emergency remote teaching in higher education: Mapping the first global online semester. *International Journal of Educational Technology in Higher Education*, 17(1), 1–24. <https://doi.org/10.1186/s41239-021-00282-x>
- Chen, C., Shahbaz, P., & Haq, S. ul. (2025). Transforming students' green behavior through environmental education: The impact of institutional practices and policies. *Frontiers in Psychology*, 15, Article 1499781. <https://doi.org/10.3389/fpsyg.2024.1499781>
- Chen, W. P., & Haq, S. ul. (2024). Transforming students' green behavior through environmental education: The impact of institutional practices and policies. *Frontiers in Psychology*, 15, 1–13. <https://doi.org/10.3389/fpsyg.2024.1499781>
- Fatika, C., & Bahari, A. (2024). Peranan mahasiswa dalam mendukung praktik keberlanjutan pada perguruan tinggi. *Journal of Economic, Business and Accounting (Costing)*, 7(5), 1561–1575. <https://doi.org/10.31539/costing.v7i5.11654>
- Ferreira, P., Leal Filho, W., Salvia, A. L., Pretorius, R. W., Brandli, L. L., Manolas, E., Alves, F., Azeiteiro, U., Rogers, J., Shiel, C., & Do Paco, A. (2020). Universities as living labs for sustainable development (pp. 138–154). Springer. <https://doi.org/10.1007/978-3-030-15604-6>
- Filho, W. L., Viera, L., Maria, T., Pimenta, A., Ulmer, N., & Paço, A. (2024). Discover Sustainability Fostering students' participation in the implementation of the sustainable development goals at higher education institutions. *South African Journal of Economic and Management Sciences*. <https://doi.org/10.1007/s43621-024-00204-7>
- Fitriani, I. N., & Susanti, R. (2020). Persepsi mahasiswa terhadap ruang terbuka hijau ideal di Kampus Undip Tembalang. *Teknik PWK (Perencanaan Wilayah Kota)*, 9(3), 151–158.
- Fridayani, J. A., Kuntara, A. D., & Kusuma, S. E. (2023). Sustainable leadership to create sustainable organization: Identify effect from pandemic era. *Jurnal Ilmiah Ekonomi Bisnis*, 28(3), 436–446. <https://ejournal.gunadarma.ac.id/index.php/ekbis/article/download/8219/3003>



PROCEEDING

International Conference on
Innovation of Science and Social Studies

E-ISSN: 3164-5240

Volume : 1 | Issue: 2 | September 2026



- Handoyo, B., Astina, I. K., & Mkumbachi, R. L. (2021). Students' environmental awareness and pro-environmental behaviour: Preliminary study of geography students at State University of Malang. *IOP Conference Series: Earth and Environmental Science*, 683(1), 012049. <https://doi.org/10.1088/1755-1315/683/1/012049>
- Hansmann, R., Laurenti, R., Mehdi, T., & Binder, C. R. (2020). Determinants of pro-environmental behavior: A comparison of university students and staff from diverse faculties at a Swiss university. *Journal of Cleaner Production*, 268, 121864. <https://doi.org/10.1016/j.jclepro.2020.121864>
- Hawa, N. N., Zakaria, S. Z. S., Razman, M. R., & Majid, N. A. (2021). Geography education for promoting sustainability in Indonesia. *Sustainability*, 13(8), 4340. <https://doi.org/10.3390/su13084340>
- Hébert, A., & Hauf, P. (2015). Student learning through service learning: Effects on academic development, civic responsibility, interpersonal skills and practical skills. *Active Learning in Higher Education*, 16(1), 37–49. <https://doi.org/10.1177/1469787415573357>
- Iqbal, Q., & Ahmad, N. H. (2021). Sustainable development: The colors of sustainable leadership in learning organization. *Sustainable Development*, 29(1), 108–119. <https://www.academia.edu/download/96290940/sd.213520221224-1-16wbr1u.pdf>
- Islamiati, N., & Saputra, H. (2021). Pengaruh kesadaran lingkungan terhadap perubahan perilaku mahasiswa dalam pengelolaan sampah. *Jurnal Pendidikan Lingkungan dan Pembangunan Berkelanjutan*. 10.36339/jhest.v3i2.50
- Kioupi, V., & Voulvoulis, N. (2019). Education for sustainable development: A systemic framework for connecting the SDGs to educational outcomes. *Sustainability*, 11(21), 6104. <https://doi.org/10.3390/su11216104>
- Kuh, G. D. (2009). The national survey of student engagement: Conceptual and empirical foundations. *New Directions for Institutional Research*, 2009(141), 5–20. <https://doi.org/10.1002/ir.283>
- Lukman, CA., Sabuhari R., Soleman., Marwan Man. (2024). Pengaruh Team Work Terhadap Kinerja Pegawai Melalui Work Engagement Sebagai Variabel Mediasi. *Jurnal Ekonomi Manajemen Dan Bisnis*, 2024, 25(1). <https://journal.unimal.ac.id/emabis/article/download/1267/547>
- Leal Filho, W., Trevisan, L. V., Dinis, M. A. P., Ulmer, N., Paço, A., Borsari, B., Sierra, J., & Salvia, A. (2024). Fostering students' participation in the implementation of the sustainable development goals at higher education institutions. *Discover Sustainability*, 5(1), 1–24. <https://doi.org/10.1007/s43621-024-00204-7>
- Lozano, R., Ceulemans, K., Alonso-Almeida, M., Huisingh, D., Lozano, F. J., Waas, T., Lambrechts, W., Lukman, R., & Hugé, J. (2015). A review of commitment and implementation of sustainable development in higher education: results from a worldwide survey. *Journal of Cleaner Production*, 108, 1–18. <https://research-portal.uu.nl/files/258572961/1-s2.0-S0959652614009780-main.pdf>
- Lualhati, G. P., Catibog, F. J. A., Holgado, R. A. L., & Liwanag, J. M. A. (2018). Discovering Ecological Awareness of Filipino Education Students. *International Journal of Applied Science*, 1(2), p37–p37. <https://j.ideasspread.org/index.php/ijas/article/download/179/106>
- Mahalingam, D., Vijayakumar, M., & Srinivasan, V. C. (2025). The role of institutional



PROCEEDING

International Conference on
Innovation of Science and Social Studies

E-ISSN: 3164-5240

Volume : 1 | Issue: 2 | September 2026



- repositories in enhancing open access to scholarly resources. *International Journal of Innovative Science and Research Technology*, 10(11), 787–793. <https://doi.org/10.38124/ijisrt/25nov652>
- Mkumbachi, R. L. (2024). *Jurnal Pendidikan Geografi : Kajian , Teori , dan Praktek dalam Bidang Pendidikan dan Ilmu Geografi Environmental awareness and pro-environmental behavior : A case of university students in Malang city Environmental awareness and pro - environmental behav.* 25(2), 2210–2226. <https://doi.org/DOI:https://doi.org/10.17977/um017v25i22020p161>
- Muhamad Noor, M. F., Mamat, M. Z., & Mohamad, Z. F. (2024). Impact of engagement in campus sustainability activities to competency development: Change agents' experiences and perspectives. *Sustainability*, 16(5), 1780. <https://doi.org/10.3390/su16051780>
- Musannip, Z., Siregar, E., Masruroh, R., Syamsuri, A. R., Jaya, R. I. K., & Adam, D. H. (2022). Locus of Control on Pro-Environmental Behavior: The Role of Attitude toward Pro-Environmental Behavior. *International Journal of Social Science and Business*, 6(3), 416–425. <https://ejournal.undiksha.ac.id/index.php/IJSSB/article/download/48882/23998>
- Napitupulu, H., Ghali, A., Catur N, P., & Adi P, T. (2025). Systematic literature review: Penerapan konsep green campus dalam meningkatkan kesadaran lingkungan di perguruan tinggi. *BUDGETING: Journal of Business, Management and Accounting*, 6(3), 802–823. <https://doi.org/10.31539/3wpwxwy17>
- Ngabekti, S. (2021). Persepsi mahasiswa terhadap ketercapaian UNNES sebagai kampus konservasi. *Seminar Nasional X Pendidikan Biologi FKIP UNS*. <https://doi.org/10.2991/assehr.k.210326.123>
- O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, 41(5), 673–690. <https://doi.org/10.1007/s11135-006-9018-6>
- Pereira Ribeiro, J. M., Hoeckesfeld, L., Dal Magro, C. B., Favretto, J., Barichello, R., Lenzi, F. C., Secchi, L., Montenegro de Lima, C. R., & Salgueirinho Osório de Andrade Guerra, J. B. (2021). Green campus initiatives as sustainable development dissemination at higher education institutions: Students' perceptions. *Journal of Cleaner Production*, 312, 127671. <https://doi.org/10.1016/j.jclepro.2021.127671>
- Putri, D. A., Reniati, R., & Wahyudin, N. (2024). The Influence of Internship Experience , Self-Efficacy , and Work Motivation on Work Readiness of Bangka Belitung University Students. *International Journal of Economics, Business, and Entrepreneurship*, 7(2), 155–166. <https://ijebe.feb.unila.ac.id/index.php/ijebe/article/download/287/140>
- Rachmadian, R. H., Sumarmi, S., Masruroh, H., & Udaya, S. (2024). *Persepsi mahasiswa terhadap program Green Campus dalam mewujudkan perguruan tinggi yang berkelanjutan (studi kasus : Universitas Negeri Malang) Student perceptions of the Green Campus program in realizing a sustainable Terdapat banyak tantangan dalam me.* 8(3), 255–275. <https://journal.bkpsl.org/index.php/jplb/article/download/503/147>
- Rachmadian, R. H., Sumarmi, S., & Masruroh, H. (2025). Implementasi strategi inovatif perguruan tinggi dalam menanamkan sustainability awareness pada sivitas akademika melalui program green campus. *Jurnal Ilmu Lingkungan*, 23(1), 10–22. <https://doi.org/10.14710/jil.23.1.10-22>
- Ramírez-Franco, J. A., Antolín-López, R., & Montiel, I. (2025). Socialization of prospective practitioners towards pro-sustainability business attitudes: The business curriculum and



PROCEEDING

International Conference on
Innovation of Science and Social Studies

E-ISSN: 3164-5240

Volume : 1 | Issue: 2 | September 2026



- social referents. Corporate Social Responsibility and Environmental Management, 32(5), 6088–6105. <https://doi.org/10.1002/csr.70015>
- Roy, S. K. (2023). Green university initiatives and undergraduates' reuse intention for environmental sustainability: The moderating role of environmental values. *Environmental Challenges*, 13, 100797. <https://www.sciencedirect.com/science/article/pii/S2667010023001208>
- Sabuhari, R., Soleman, M. M., Fahri, J., & Rachmat, M. (2025). Organisational justice moderates the link between leadership, work engagement and innovation work behaviour. *South African Journal of Economic and Management Sciences*, 28(1), a6136. <https://doi.org/10.4102/sajems.v28i1.6136>
- Stern, P. C. (2000). New environmental theories: Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*, 56(3), 407–424. <https://doi.org/10.1111/0022-4537.00175>
- Su, Y., Zhu, Z., Chen, J., Jin, Y., Wang, T., Lin, C.-L., & Xu, D. (2021). Factors influencing entrepreneurial intention of university students in China: Integrating the perceived university support and theory of planned behavior. *Sustainability*, 13(8), 4519. <https://doi.org/10.3390/su13084519>
- Sugiarto, A., & Gabriella, D. A. (2020). Kesadaran dan perilaku ramah lingkungan mahasiswa di kampus. *Jurnal Ilmu Sosial dan Humaniora*, 9(2), 260–275. <https://doi.org/10.23887/jish-undiksha.v9i2.21061>
- Susanti, N. (2020). Analisis pengaruh modal, biaya produksi dan lama usaha terhadap pendapatan UMKM di Kecamatan Sabangau Kota Palangka Raya. *Growth*, 6(2), 90–105. <https://doi.org/10.52300/grow.v6i2.4499>
- Taber, K. S. (2018). The use of Cronbach's Alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48(6), 1273–1296. <https://doi.org/10.1007/s11165-016-9602-2>
- Taherdoost. (2016). *Sampling Methods in Research Methodology ; How to Choose a Sampling Technique for*. 5(2), 18–27. <https://papers.ssrn.com/sol3/Delivery.cfm?abstractid=3205035>
- Taherdoost, H. (2022a). What are different research approaches? Comprehensive review of qualitative, quantitative, and mixed method research, their applications, types, and limitations. *Journal of Management Science & Engineering Research*, 5(1), 53–63. <https://doi.org/10.30564/jmser.v5i1.4538>
- Taherdoost, H. (2022b). Designing a questionnaire for a research paper: A comprehensive guide to design and develop an effective questionnaire. *Asian Journal of Managerial Science*, 11(1), 8–16. <https://doi.org/10.51983/ajms-2022.11.1.3087>
- Tudorie, G., Groza, V., & Popescu, C. (2020). Sustainable university campus: Students' perceptions and participation. *Sustainability*, 12(21), 8945. <https://doi.org/10.3390/su12218945>
- Wei Mun, Ahmad Chin, N., Ismail, I., & Alias, S. N. (2024). The Dynamics of Student Engagement through the Lens of Involvement and Self-Determination Theories. *International Journal of Academic Research in Business and Social Sciences*, 14, 2210–2226. <https://doi.org/10.6007/IJARBSS/v14-i11/23730>
- Yantika, A. V., Rahmah, F., Murtadho, A., & Mustofa, I. (2024). Studi tentang dampak green



- campus terhadap kesadaran lingkungan mahasiswa di UIN Raden Intan Lampung. Pendas: Jurnal Ilmiah Pendidikan Dasar, 9(4), 223–241. <https://doi.org/10.23969/jp.v9i04.21558>
- Yildiz, Y., & Budur, T. (2019). Introducing environmental awareness to college students with curricular and extracurricular activities. *International Journal of Academic Research in Business and Social Sciences*, 9(3), 667–675. https://www.academia.edu/download/90516513/Introducing_Environmental_Awareness_to_College_Students_with_Curricular_and_Extracurricular_Activities.pdf
- Zsóka, Á., Szerényi, Z. M., Széchy, A., & Kocsis, T. (2013). Greening due to environmental education? Environmental knowledge, attitudes, consumer behavior and everyday pro-environmental activities of Hungarian high school and university students. *Journal of Cleaner Production*, 48, 126–138. <https://doi.org/10.1016/j.jclepro.2012.11.030>