



## **Intention and Actual Behavior Toward Separate Waste under the Role of Education: Diagnostic Analysis with Data from Students in Vietnamese Universities**

Vu Thi Thanh Binh\*, Hoang Thi Kieu Nga My, Dao Thi Trang, Nguyen Thuy An, Nguyen Thi Hong Thuy,  
and Dang Thu Hang

VNU University of Economics and Business, Hanoi, Vietnam

\*Email: vtbinh@vnu.edu.vn

### **Abstract**

Environmental issues have become a central concern, and environmental education plays a critical role in supporting green accounting practices and promoting sustainable development within higher education institutions. This study aims to examine the relationships and impacts of environmental education on students' waste separation intention and actual waste separation behavior as distinct constructs, while also exploring differences in both intention and behavior across higher education institutions in Vietnam. Data were collected from 490 students at Vietnamese universities and analyzed using descriptive statistics and diagnostic analyses to explore behavioral patterns, followed by linear regression models to quantify the influence of environmental education on students' intention and actual waste separation behavior. The findings indicate that environmental education, delivered through both formal curricula and extracurricular activities, significantly enhances students' environmental awareness and positively influences their intention and actual engagement in waste separation on campus. Moreover, variations in waste separation intention and behavior are observed across gender groups, academic majors, and higher education institutions. This study contributes to the literature by extending empirical evidence on the role of environmental education in shaping pro-environmental intention and behavior, offering practical implications for higher education institutions in designing green accounting-oriented environmental education programs and advancing sustainable development goals.

**Keywords:** *Actual Behavior, Environmental Education, Student Perception, Waste Separation Intention.*

### **1. Introduction**

Environmental education and sustainable education have become central pillars in advancing environmental sustainability in contemporary societies. Within this context, higher education institutions play a critical role in equipping future generations with the knowledge, competencies, and mindset required to contribute to a sustainable society (Lundy et al., 2022). Environmental education extends beyond the transmission of ecological knowledge; it represents a comprehensive process aimed at deepening individuals' understanding of socio-environmental issues while strengthening problem-solving and decision-making capabilities. By elucidating ecological interrelationships and underlying principles, environmental education enables learners to recognize alternative solutions and informed courses of action (Bogan, 1973). Given that environmental behavior is shaped by multiple psychological antecedents and constrained by material conditions, understanding the decision-making moment itself is crucial for addressing persistent cycles of environmental degradation (McGuire, 2015).

In recent decades, environmental education has attracted growing attention in international educational research, particularly within developing-country contexts. Prior studies have extensively examined the interconnections among environmental knowledge, awareness, attitudes, and behavior. For instance, Riordan and Klein (2010) investigated students' behavioral responses to environmental issues, highlighting the importance of environmental education in stimulating engagement and reflective learning. Their findings indicated that participation in environmental education encouraged students to move beyond cognitive problem-solving toward greater self-regulation of environmentally relevant behaviors. Nevertheless, the literature reflects ongoing debate regarding the positioning of environmental education within the broader framework of education for sustainable development, suggesting conceptual and practical divergences across studies.



Empirical evidence has increasingly focused on the role of environmental education in shaping pro-environmental intentions and behaviors. Liao and Li (2019) demonstrated that individuals' intentions to engage in environmental protection activities largely derived from knowledge acquisition and heightened awareness facilitated by environmental education. However, their study acknowledged limitations related to sample composition and research scope, calling for future studies to distinguish between objective and subjective environmental knowledge when examining links with attitudes and intentions. Similarly, Boca and Saraçlı (2019), based on data collected from university students across multiple disciplines, found consistent perceptions of the importance of environmental education regardless of academic background. Their correlation analysis revealed positive relationships among environmental awareness, attitudes, and behaviors, though the single-institution sample constrained the generalizability of the results. Complementing these findings, a wide range of theoretical frameworks, including norm activation, persuasion, attitude priming, and social identity, have been applied to explain how environmental education translates into concrete behavioral outcomes. These frameworks have been empirically validated across various pro-environmental contexts, such as recycling, resource conservation, and litter reduction, consistently demonstrating the effectiveness of educational and psychological interventions in inducing environmentally responsible behavior. Nevertheless, empirical evidence remains limited regarding how environmental education influences pro-environmental intentions and behaviors, particularly in university contexts where educational initiatives can play a pivotal role in advancing sustainable development.

## 2. Objectives

The primary objective of this study is to investigate the role of environmental education in shaping students' waste separation intention and actual waste separation behavior at higher education institutions in Vietnam.

(1) The study seeks to examine the relationships between environmental education and intention, as well as between environmental education and actual behavior, treating these two outcomes as conceptually and empirically distinct constructs.

(2) The research aims to explore differences in waste separation intention and actual behavior among students across different higher education institutions.

By achieving these objectives, the study provides a more comprehensive understanding of how environmental education influences both students' environmental intentions and their realized behaviors within university settings.

## 3. Materials and Methods

### 3.1 Hypotheses and research model

Environmental education is fundamental to shaping environmental awareness and knowledge at both individual and societal levels, integrating multiple instructional approaches to facilitate engagement with complex environmental problems and to foster critical reflection and pro-environmental actions. The United States Environmental Protection Agency (EPA) 2024 defines environmental education as a process that enables people to investigate environmental concerns, participate in resolving problems, and contribute to environmental improvement. Thus, people acquire a more profound comprehension of environmental concerns and possess the skills to make well-informed and responsible decisions.

Many researchers and practitioners have highlighted the critical role of environmental education, based on the statement of the United Nations Declaration in 1977 on the environment and human beings. This education empowers individuals to make informed choices and take actions that promote sustainable development (Heimlich & Ardoin, 2008). Venkataraman (2008) argued that environmental education must be integrated into different levels of the educational system. Many stakeholders have worked to embed environmental education into their frameworks and community activities to improve awareness of the environment (Herman et al., 2013).

Environmental education (EE) plays a crucial role in promoting actual pro-environmental behavior by equipping individuals with the knowledge, skills, and competencies necessary to address environmental



issues through concrete actions. By teaching ecological principles and the interrelationships underlying environmental problems, EE enhances learners' capacity to translate environmental awareness into practical behavioral responses (Bogan, 1973). As a continuous developmental process, environmental education aims to cultivate citizens who are capable of making informed decisions and implementing those decisions in ways that support environmental and personal sustainability (Heimlich & Ardoin, 2008; Pedro & Pedro, 2010). Furthermore, EE contributes to the development of a globally conscious community that possesses the motivation, commitment, and practical capabilities required to engage collectively in solving environmental problems (Imran et al., 2021; UNESCO, 1977). Empirical studies indicate that environmental knowledge is a significant predictor of actual environmental behavior, suggesting that educational interventions can facilitate the adoption of environmentally responsible practices (Zsóka et al., 2013). Although some research highlights the existence of an attitude–behavior gap, evidence shows that well-structured environmental education programs, particularly those incorporating experiential learning and extracurricular activities, can effectively encourage students' engagement in tangible pro-environmental behaviors, such as waste separation and resource conservation (Binh, Thuy, & Hang, 2025; Boca & Saraçlı, 2019).

Environmental education also exerts a strong influence on individuals' pro-environmental intentions by shaping environmental awareness, values, and attitudes. Through systematic instruction on environmental issues and sustainability principles, EE enhances learners' understanding of the consequences of environmental degradation and the importance of individual responsibility, thereby strengthening their intention to engage in environmentally responsible behaviors (May, 2000; UNESCO, 1977). Prior research suggests that environmental knowledge is a key antecedent of environmental intention, as it supports the formation of favorable attitudes and normative beliefs toward environmental protection (Edubirdie, 2022; Zsóka et al., 2013). Moreover, environmental education functions as a foundational mechanism for fostering environmentally friendly intentions by increasing students' perceptions of behavioral relevance and personal efficacy (Heimlich & Ardoin, 2008). Recent empirical studies indicate that while environmental education may not always lead directly to immediate behavioral change, it is particularly effective in shaping pro-environmental intentions, which serve as a critical precursor to actual behavior (Ardoin & Bowers, 2020; Boca & Saraçlı, 2019). Consequently, environmental education is widely recognized as a key driver of students' intention to participate in environmental activities, including waste separation initiatives within higher education institutions.

This study postulates the research equation to demonstrate a positive effect of environmental education on students' intention and actual behavior in environmental activities:

$$BEHi = \alpha_1 + \beta_1 * EEi \quad (1)$$

$$INTi = \alpha_1 + \beta_2 * EEi \quad (2)$$

Where: BEH: Actual behavior in separating waste on campus

INT: Student intention in separating waste on campus

EE: Environmental education at higher education institutions

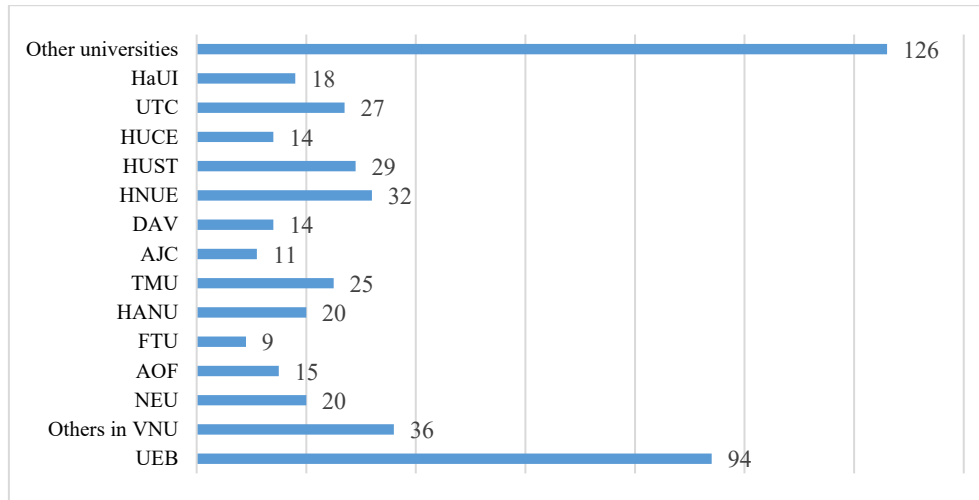
### 3.2 Research methods

*Variable measurement:* Three variables with 11 items in this research were adopted from the previous study by Liao and Li (2019). The dependent variables are intention (INT1 to INT3) and actual behavior (BEH1 to BEH4) in separating waste, and the independent variable is environmental education (EDU1 to EDU4). This research used two scales, a 7-point Likert scale for intention and actual behavior variables and a 5-point Likert scale for environmental education to reduce common method variance (Chang, Van Witteloostuijn, & Eden, 2010). The measurement of variables is depicted in Table 1.

*Data collection and analysis:* The study collected primary data through an online survey. The online questionnaire via Google Form was sent to students. 490 valid responses were collected and analyzed. The



demographics of responses are shown in Figure 1. The study used SPSS 26 software for analyzing the data, including descriptive statistics, diagnostic analyses with ANOVA, and linear regression.



**Figure 1** Demographics of respondents from universities in Vietnam

#### 4. Results and Discussion

##### 4.1 Research findings

The results of the data quality test include descriptive statistics, a reliability test, and exploratory factory analysis (EFA). The summary is presented in Table 1.

**Table 1** Measurement and data quality test

Variables	Mean	Cronbach $\alpha$	EFA results	Sources
Intention	INT1	5.19	KMO = 0.730 Sig. (Bartlett's Test) = 0.000 PCA: 01 component	Liao and Li (2019)
	INT2	5.26		
	INT3	5.16		
Actual behavior	BEH1	5.10	KMO = 0.883 Sig. (Bartlett's Test) = 0.000 PCA: 01 component	Liao and Li (2019)
	BEH2	5.43		
	BEH3	5.55		
	BEH4	5.79		
Environmental education	EDU1	4.17	KMO = 0.753 Sig. (Bartlett's Test) = 0.000 PCA: 01 component	Liao and Li (2019)
	EDU2	3.93		
	EDU3	4.05		
	EDU4	3.97		

The descriptive statistics indicate that students generally report moderate to high levels of environmental awareness, intention, and behavior. Environmental education (EDU), measured using a 5-point Likert scale, shows mean values ranging from 3.93 to 4.17, suggesting that students perceive environmental education activities at their institutions as relatively positive, though with room for improvement. In contrast, student intention and actual behavior are measured using a 7-point Likert scale and exhibit higher mean values. The mean scores for intention range from 5.16 to 5.26, while those for actual behavior range from 5.10 to 5.79. These results indicate that students demonstrate a relatively strong intention to engage in environmental activities and report frequent participation in pro-environmental behaviors, particularly in waste separation practices on university campuses.



Measurement quality was assessed using Cronbach's alpha and exploratory factor analysis (EFA). The reliability analysis shows that all constructs achieve satisfactory internal consistency, with Cronbach's alpha values of 0.880 for behavioral intention, 0.864 for actual behavior, and 0.785 for environmental education, exceeding the recommended threshold of 0.70 (Vaske, Beaman, & Sponarski, 2017). The EFA was conducted separately for the independent variable and the dependent variables in Model (1) and Model (2) to ensure the unidimensionality of the measurement scales. The summarized results presented in Table 1 indicate that all constructs meet the requirements for factor analysis, with KMO values above 0.70 and Bartlett's tests of sphericity being statistically significant (Sig. = 0.000). Principal component analysis extracted a single factor for each construct, confirming good convergent validity and supporting the suitability of the measurement model for subsequent linear regression analyses.

The mean values of the variables representing the dependent and independent constructs were computed by averaging their respective measurement items. The aggregated variables were labeled as behavioral intention (INT), actual behavior (BEH), and environmental education (EE). The study then employed linear regression analysis for Model (1) and Model (2) to examine the effects of environmental education on students' behavioral intention and actual behavior toward environmental issues. The regression results are presented in Table 2.

**Table 2** Summary of the linear regression

Model	B	Std. Error	Beta	t	Sig.	VIF	R Square	Adjusted R Square	F	Sig.
1 (Constant)	1.189	0.255		4.663	0.000					
EE	1.061	0.062	0.611	17.042	0.000	1	0.373	0.372	290.423	.000 <sup>b</sup>
2 (Constant)	1.544	0.280		5.521	0.000					
EE	0.908	0.068	0.516	13.296	0.000	1	0.266	0.264	176.772	.000 <sup>b</sup>

Table 2 presents the results of the linear regression analyses for Model (1), examining the effect of environmental education on actual behavior, and Model (2), examining the effect of environmental education on behavioral intention. For Model (1), the coefficient of determination (R-square) is 0.373, with an adjusted R-square of 0.372, indicating that environmental education explains approximately 37.3% of the variance in students' actual waste separation behavior. In Model (2), the R-square value is 0.266 and the adjusted R-square is 0.264, suggesting that environmental education accounts for about 26.6% of the variance in students' behavioral intention toward waste separation. These results indicate that environmental education has a stronger explanatory power for actual behavior than for intention in the context of waste separation among university students.

The overall model fit was assessed using the F-test. The F-statistics for Model (1) and Model (2) are 290.423 and 176.772, respectively, with significance levels of 0.000. These findings confirm that both regression models are statistically significant and suitable for explaining the relationships between environmental education and students' environmental intention and behavior. In addition, the variance inflation factor (VIF) values equal to 1 indicate no multicollinearity concerns in the estimated models.

The regression coefficients further reveal a positive and statistically significant relationship between environmental education and both actual behavior and behavioral intention. In Model (1), environmental education exhibits a positive standardized coefficient ( $\beta = 0.611$ ,  $p < 0.001$ ), demonstrating that higher levels of environmental education are associated with increased engagement in waste separation behavior among students. Similarly, in Model (2), environmental education positively influences behavioral intention ( $\beta = 0.516$ ,  $p < 0.001$ ), indicating that students exposed to stronger environmental education are more likely to intend to participate in waste separation activities. These findings provide robust empirical evidence that environmental education plays a critical role in shaping both students' intentions and their actual pro-environmental behaviors.



Table 3 reports the descriptive statistics for behavioral intention (INT), actual behavior (BEH), and environmental education (EE).

**Table 3** Descriptive statistics of variables among universities

	University	BEH	INT	EE
1	UEB	4.63	4.66	3.67
2	Others in VNU	5.92	5.73	4.42
3	NEU	5.83	5.03	4.13
4	AOF	6.12	5.93	4.42
5	FTU	5.53	5.04	4.39
6	HANU	5.01	4.78	3.63
7	TMU	5.35	5.67	4.01
8	AJC	5.52	4.88	3.98
9	DAV	5.68	5.55	4.27
10	HNUE	5.28	4.38	3.80
11	HUST	5.59	4.70	3.62
12	HUCE	4.88	5.33	4.07
13	UTC	5.83	5.67	4.23
14	HaUI	5.76	5.35	4.14
15	Other universities	5.86	5.57	4.24

The differences across universities reported in Table 3 were examined using analysis of variance (ANOVA). The diagnostic analysis with the ANOVA test is shown in Table 4.

**Table 4** Diagnostic analysis with ANOVA

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
BEH		1.808	14	475	0.035
INT		2.943	14	475	0.000
EE		2.816	14	475	0.000
Robust Tests of Equality of Means					
		Statistic <sup>a</sup>	df1	df2	Sig.
BEH	Welch	6.712	14	100.868	0.000
INT	Welch	6.028	14	100.905	0.000
EE	Welch	6.448	14	100.822	0.000

a. Asymptotically F distributed.

The results in Table 4 of Levene's test indicate that the assumption of homogeneity of variances is violated, as the significance level is below 0.05. Therefore, the study employs the Robust Tests of Equality of Means, specifically the Welch test, to assess group differences. The Welch test results are statistically significant ( $p < 0.05$ ), indicating that there are meaningful differences in students' evaluations of behavioral intention, actual behavior, and environmental education across universities.

#### 4.2 Research discussion

Regarding the relationship between environmental education and actual environmental behavior, the results of Model (1) provide strong empirical support for the proposed hypothesis that environmental education positively influences students' engagement in waste separation behavior. This finding is consistent with earlier studies suggesting that environmental knowledge and education can translate into concrete

[643]



behavioral outcomes when supported by appropriate learning environments and institutional practices (Heimlich & Ardoin, 2008). Moreover, the significant effect of environmental education on actual behavior corroborates the arguments of Zsóka et al. (2013), who highlight environmental knowledge as a predictor of pro-environmental behavior, and extends the evidence provided by Boca and Saraçlı (2019) and Binh et al. (2025) regarding the role of formal instruction and extracurricular activities in promoting students' environmentally responsible actions.

The empirical findings of this study are largely consistent with prior research that emphasizes the role of environmental education in shaping both pro-environmental intention and actual behavior. With respect to the relationship between environmental education and behavioral intention, the positive and significant effect observed in Model (2) supports earlier arguments that environmental education enhances environmental awareness, values, and attitudes, which in turn strengthen individuals' intentions to engage in environmentally responsible activities. This result aligns with the conclusions of Zsóka et al. (2013), who identify environmental knowledge as a key antecedent of environmental intention, and with Boca and Saraçlı (2019), who demonstrate that environmental education is particularly effective in fostering pro-environmental intentions among students. These findings confirm the hypothesis that environmental education functions as an important cognitive and attitudinal foundation for the formation of behavioral intention in the context of waste separation on university campuses.

The finding that environmental education explains a larger proportion of variance in actual behavior than in behavioral intention contrasts with some previous studies that emphasize a stronger impact of environmental education on attitudes and intentions than on behavior. This result suggests that, in the context of higher education institutions in Vietnam, environmental education may be particularly effective when it is embedded in practical, action-oriented programs that encourage students to directly participate in waste separation activities. By demonstrating significant effects on both intention and actual behavior, this study contributes to the literature by providing empirical evidence that environmental education can help narrow the intention–behavior gap frequently discussed in environmental education research. The consistency between the study's findings and prior hypotheses-based arguments strengthens the theoretical validity of the proposed research model and highlights the central role of environmental education in fostering sustainable behaviors among university students. These results extend existing literature by offering context-specific evidence from higher education institutions in a developing country, thereby enriching the understanding of how environmental education influences both environmental intention and actual behavior in practice.

The findings of this study provide strong empirical support for the central role of environmental education in enhancing both behavioral intention and actual pro-environmental behavior among students in higher education institutions. Consistent with the proposed hypotheses and prior literature, the regression results demonstrate that higher levels of environmental education are significantly associated with stronger intentions to engage in environmental activities and more frequent participation in actual waste separation behaviors. These results reinforce earlier arguments that environmental education not only shapes environmental awareness and attitudes but also facilitates the translation of intention into concrete behavioral outcomes within university settings. By confirming significant effects on both intention and actual behavior, this study contributes to the growing body of evidence suggesting that well-designed environmental education programs can help narrow the intention–behavior gap commonly observed in environmental research. The comparative analysis across universities further reveals substantial differences in students' perceptions of environmental education, behavioral intention, and actual behavior. The ANOVA and robust Welch test results indicate that students' evaluations vary significantly among higher education institutions, reflecting heterogeneity in the scope, quality, and implementation of environmental education initiatives. Universities with stronger perceived environmental education tend to exhibit higher levels of student intention and actual engagement in waste separation, whereas institutions with weaker environmental education practices show comparatively lower levels of pro-environmental engagement. These findings suggest that differences in institutional strategies, curricular integration, and extracurricular opportunities play a critical role in shaping students' environmental outcomes.



## 5. Conclusion

This study reinforces the importance of environmental education as a key driver of waste separation practices in higher education institutions. The stronger effect of environmental education on actual behavior suggests that educational programs that combine theoretical knowledge with practical and experiential learning may help bridge the intention-behavior gap commonly identified in environmental studies. From a practical standpoint, the findings imply that universities should integrate environmental education more deeply into formal curricula and extracurricular activities to promote sustainable behaviors on campus. Such initiatives not only enhance students' environmental awareness and intentions but also translate into tangible behavioral outcomes, contributing to the development of greener campuses and supporting broader sustainable development goals.

From a practical perspective, the results highlight the need for higher education institutions to adopt more systematic and integrated approaches to environmental education. Rather than treating environmental education as an isolated or elective component, universities should embed sustainability-related content across academic programs and complement formal instruction with experiential learning and extracurricular activities. Such integrated strategies can enhance students' knowledge of sustainable development, strengthen their environmental intentions, and foster consistent pro-environmental behaviors. By investing in comprehensive environmental education frameworks, higher education institutions can not only improve students' environmental competencies but also contribute more effectively to broader sustainable development goals and the promotion of environmentally responsible citizenship.

## 6. Acknowledgements

The authors would like to express their sincere gratitude to the students involved in the research project, including Ninh Thuy Anh, Tran Thi My Le, Pham Khanh Ly, and Ta Trang My, for their valuable support in data collection. Their time, effort, and commitment greatly contributed to the successful completion of this study.

## 7. References

- Ardoin, N. M., & Bowers, A. W. (2020). Early Childhood Environmental Education: A Systematic Review of the Research Literature. *Educational Research Review*, 31, 100353.
- Binh, V. T. T., Thuy, N. T. H., & Hang, D. T. (2025). Factors Influencing Actual Behavior Toward Waste Separation at Vietnamese Higher Education. *Journal of Sustainability at the Chiba University of Commerce*, 1, 82-101.
- Boca, G. D., & Saraçlı, S. (2019). Environmental Education and Student's Perception for Sustainability. *Sustainability*, 11(6), 1553.
- Bogan, W. J. (1973). Environmental Education Redefined. *The Journal of Environmental Education*, 4(4), 1-3.
- Chang, S. J., Van Witteloostuijn, A., & Eden, L. (2010). From the Editors: Common Method Variance in International Business Research. *Journal of International Business Studies*, 41, 178-184.
- Edubirdie. (February 21, 2022). *Media Use in Environmental Education at Secondary Level*. Retrieved from <https://edubirdie.com/examples/effectiveness-of-media-utilization-in-environmental-education-at-secondary-level/>
- EPA. (July 2, 2024). *What is Environmental Education?* Retrieved from <https://www.epa.gov/education/what-environmental-education#:~:text=Environmental%20education%20is%20a%20process,make%20informed%20and%20responsible%20decisions.>
- Heimlich, J. E., & Ardoin, N. M. (2008). Understanding Behavior to Understand Behavior Change: A Literature Review. *Environmental Education Research*, 14(3), 215-237.
- Herman, R. A., Garcia-Alonso, M., Layton, R., & Raybould, A. (2013). Bringing Policy Relevance and Scientific Discipline to Environmental Risk Assessment for Genetically Modified Crops. *Trends In Biotechnology*, 31(9), 493-496.



- Imran, M., Akhtar, S., Chen, Y., & Ahmad, S. (2021). Environmental Education and Women: Voices From Pakistan. *SAGE Open*, 11(2).
- Liao, C., & Li, H. (2019). Environmental Education, Knowledge and High School Students' Intention Toward Separation of Solid Waste on Campus. *International Journal of Environmental Research and Public Health*, 16(9), 1659.
- Lundy, K., Reynolds, S., & Auton-Smith, S. (2022). *ESG in Higher Education: From Strategy to Execution*. Retrieved from [https://www.ey.com/en\\_us/insights/education/esg-in-higher-education-a-focus-on-the-environment](https://www.ey.com/en_us/insights/education/esg-in-higher-education-a-focus-on-the-environment)
- May, T. S. (2000). Elements of Success in Environmental Education through Practitioner Eyes. *The Journal of Environmental Education*, 31(3), 4-11.
- McGuire, N. M. (2015). Environmental Education and Behavioral Change: An Identity-Based Environmental Education Model. *International Journal of Environmental and Science Education*, 10(5), 695-715.
- Pedro, Á. S., & Pedro, V. M. (2010). Developing Sustainable Environmental Behavior in Secondary Education Students (12-16) Analysis of a Didactic Strategy. *Procedia-Social and Behavioral Sciences*, 2(2), 3568-3574.
- Riordan, M., & Klein, E. J. (2010). Environmental Education in Action: How Expeditionary Learning Schools Support Classroom Teachers in Tackling Issues of Sustainability. *Teacher Education Quarterly*, 37(4), 119-137.
- UNESCO. (1977). *Intergovernmental Conference on Environmental Education*. Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf0000032763>
- Vaske, J. J., Beaman, J., & Sponarski, C. C. (2017). Rethinking Internal Consistency in Cronbach's Alpha. *Leisure Sciences*, 39(2), 163-173.
- Venkataraman, B. (2008). Why Environmental Education? *Environment: Science and Policy For Sustainable Development*, 50(5), 8-11.
- 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.