PERSONIFIKASI: Jurnal Ilmu Psikologi
Vol. 17 No. 1, May 2026
ISSN: 2087-7447 (print) | ISSN: 2721-0626 (online)
https://journal.trunojoyo.ac.id/personifikasi

Place Attachment and Environmental Awareness Predict University Students' Pro-Environmental Behavior

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ARTICLE INFO
Article history:
Received
April 30, 2026
Revised
May 12, 2026
Accepted
May 31, 2026

ABSTRACT

Universities contribute significantly to promoting environmental sustainability by fostering eco-friendly mindsets and behaviours among students. In line with this role, the present study investigated the connections among place attachment, environmental consciousness, and pro-environmental actions in college students. An explanatory method utilizing surveys was employed in the study. Data were gathered via online surveys sent to 114 students at Universitas Hang Tuah by accidental sampling. Three psychological tools were employed to evaluate pro-environmental behaviour, attachment to place, and awareness of the environment. Data analysis was performed utilizing Spearman's rank correlation with the support of IBM SPSS Statistics version 25. The results indicated a significant positive relationship between place attachment and pro-environmental behaviour ($r = 0.414$, $p < 0.01$), as well as a robust connection between environmental awareness and pro-environmental behaviour ($r = 0.516$, $p < 0.01$). Furthermore, there was a positive correlation between place attachment and environmental awareness ($r = 0.384$, $p < 0.01$). Descriptive results showed that most students exhibited moderate levels of environmental behaviour, attachment to place, and awareness of environmental issues. These findings suggest that emotional attachment to the campus environment and environmental awareness are closely related to environmentally responsible behaviour among university students. It is suggested that future research investigate more psychological and social elements affecting pro-environmental behaviour, including social norms, environmental values, and support from institutions.

Key words: *environmental conservation; pro-environmental behaviour; university students*

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1. INTRODUCTION

Environmental deterioration has emerged as a worldwide issue, evident in problems like climate change, urban air contamination, and restricted availability of clean drinking water (Steg et al., 2014). In recent decades, environmental problems have gained increasing attention from scholars, policymakers, and broader society due to their wide-ranging impacts. These problems are intimately associated with the relationship between humans and the natural surroundings, as various human activities and patterns of behavior frequently contribute to environmental degradation.

In this context, environmental behavior plays an important role as it refers to any form of human action that may influence the environment either positively or negatively (Ruepert et al., 2016). Human behavior toward the environment has a significant role in promoting environmental sustainability. Actions such as managing waste, preserving environmental cleanliness, minimizing the use of harmful materials, participating in recycling activities, and utilizing energy responsibly are examples of environmentally related behavior.

Actions that are mindful of the environment are crucial for diminishing the negative impacts of human behavior on ecological systems and for fostering environmental sustainability, whether through direct changes in behavior or through heightened awareness and accountability.

The interaction between humans and the environment is fundamentally reciprocal in nature. When individuals actively protect, manage, and conserve the environment, natural ecosystems can continue to support human well-being in the long term. Conversely, inadequate environmental concerns such as deforestation, forest burning, environmentally destructive practices, and the failure to rehabilitate degraded areas can contribute to environmental deterioration and ecological imbalance. These conditions may further increase the risk of natural disasters, including floods, landslides, forest fires, and the loss of wildlife (Mulati & Kuswati, 2022).

At present, numerous environmental problems persist unresolved even though the environment plays a crucial role in all areas of life and greatly affects human well-being (Kollmuss & Agyeman, 2002). Therefore, the involvement of various societal groups is essential to achieve environmental sustainability. Governments, businesses, and communities must collaborate to preserve the environment.

Communities play a vital role in safeguarding the environment for future generations, indicating that humans bear a moral duty to protect and sustain the natural world (Ambarfebrianti & Novianty, 2021). Environmental conservation initiatives have been widely implemented across various sectors, including business and non-business institutions. Likewise, non-commercial entities, like educational institutions such as universities, significantly contribute to advancing environmental sustainability.

Education is broadly regarded as an important factor that shapes individuals' environmental awareness and behavioral tendencies toward the environment (Zilahy & Huisingh, 2009; Zsóka et al., 2013). Universities as higher education institutions are vital in enhancing students' environmental awareness and promoting responsible ecological actions. In this regard, the development of environmentally oriented campuses has become an important concern for many universities as part of their contribution to addressing global environmental challenges (Rachmawati & Handayani, 2014).

Nonetheless, studies examining pro-environmental actions among university students in Indonesia are still limited and require further investigation. Existing studies have yet to comprehensively examine students' environmental awareness and their pro-environmental practices in daily campus life. As institutions responsible for developing human resources, universities also contribute to environmental preservation by implementing programs that promote environmentally responsible values, character, and behavior among students.

Environmental programs have been promoted by several universities in Indonesia to foster environmental responsible character in students and encourage them to consistently engage in pro-environmental behavior. Through these programs, students are expected to apply such behaviors both within the campus environment and the broader community (Sugiarto & Gabriella, 2020).

To effectively implement the programs, active participation from students in environmental conservation efforts is essential. In this study, such actions are conceptualized as pro-environmental behavior.

Pro-environmental actions include several measures aimed at minimizing environmental harm and promoting positive impacts on ecological sustainability (Steg & Vlek, 2009). Similarly, Kollmuss and Agyeman (2002) characterize this behavior as deliberate actions intended to alleviate the adverse effects of human activities on natural and constructed environments, encompassing resource and energy conservation, curtailing hazardous substance usage, and minimizing waste generation.

In line with this view, Dono et al (2010) describe pro-environmental behavior as intentional conduct directed toward decreasing environmental harm. Park and Ha (2012) further emphasize that this behavior emerges from individual decision-making processes and intentions that lead to beneficial environmental consequences. Lee et al (2013) consistently characterize pro-environmental behavior as a form of environmentally responsible action.

Gifford and Nilsson (2014) contend that a blend of individual and societal factors influences environmental attitudes and actions. Personal determinants encompass a variety of factors, including childhood experiences, environmental knowledge and educational experiences, personality characteristics, self-concept, perceived behavioral control, values, political beliefs and worldviews, personal aspirations, sense of responsibility, cognitive tendencies, place attachment, demographic factors such as age and gender, as well as individual activity preferences.

Social factors include religion, place of residence (urban or rural), social norms, social class, environmental context, and cultural differences. In addition, another factor influencing pro-environmental behavior is environmental awareness. According to Hernawati and Saputro (2020) environmental behavior is shaped by environmental awareness, which is reflected in individuals' participation in various pro-environmental actions. People exhibiting pro-environmental behavior typically show a greater degree of environmental awareness, favorable attitudes toward environmental conservation, social backing, exposure to environmental norms and values, environmental knowledge, a drive to protect the environment, personal accountability, and encouraging personality traits (Chen et al., 2022).

Furthermore, earlier studies have primarily focused on the general population, workers, or particular community groups, making their findings not entirely applicable to university students (Paillé & Boiral, 2013). Students have distinct developmental characteristics, social interaction patterns, and intensity of campus activities compared to other respondent groups.

During the phase of emerging adulthood, students experience identity exploration, increased independence, and the development of social and environmental responsibility (Rosa & Zammitti, 2025). Therefore, it is imperative to do research that specifically examines pro-environmental behavior among students as young intellectuals who are expected to become agents of change in environmental preservation.

A factor that may influence pro-environmental behaviors is place attachment, which refers to the profound emotional bond that individuals gradually develop with a particular site through meaningful and continuous experiences (Trilestari et al., 2020). This idea includes emotional, cognitive, and functional dimensions of the connection between people and location. Such attachment can influence how individuals perceive, value, and interact with their surrounding environment, thereby encouraging behaviors that support environmental protection (Trilestari et al., 2020).

Previous research has consistently demonstrated a significant connection between place attachment and environmentally friendly behavior. A study involving employees indicated a positive relationship between the two variables ($r = 0.504$, $p < 0.05$), implying that those with deeper emotional connections to a specific location are likely to engage more in environmentally conscious actions. In line with this, Mafar (2018) identified a significant connection between place attachment and pro-environmental actions among students at UIN Sunan Ampel Surabaya.

Notwithstanding this, prior research has produced varying results regarding the elements affecting pro-environmental actions. Some research suggests that place attachment is closely linked to environmentally friendly behaviors (Scannell & Gifford, 2010; Ramkissoon et al., 2013).

Nonetheless, additional evidence indicates that environmental awareness, knowledge, and personal norms could exert a greater impact on pro-environmental actions than place attachment (Vicente-Molina et al., 2013). These diverse outcomes underscore the need for further research on the relationships among place attachment, environmental awareness, and pro-environmental behaviors, especially in Indonesian university students.

An additional element linked to the pro-environmental behavior of individuals is environmental consciousness (Hernawati & Saputro, 2020). Environmental awareness can be defined as individuals level of understanding of environmental characteristics, processes, and issues, as well as their level of concerns for environmental quality and their commitment to environmentally responsible behavior in daily life (Hernawati & Saputro, 2020).

Sugiarto and Gabriella (2020), further conceptualizes environmental awareness as a form of knowledge and conscious understanding that shapes individuals' thinking, attitudes, and behaviors toward

environmental phenomena, which are interpreted as environmental phenomena understood within their historical contexts.

Thus, this study seeks to examine the relationships between place attachment, environmental awareness, and pro-environmental behaviors among students at Universitas Hang Tuah. The findings are expected to enrich the field of environmental psychology, particularly by providing further insight into psychological factors associated with environmentally responsible behavior in higher education settings.

This research is important as students' pro-environmental behaviors are not just personal issues but are intricately connected to the success of eco-focused campus programs that are more widely adopted in universities. Universities significantly influence the values, attitudes, and behaviors of students within academic environments, institutional policies, and educational initiatives that prioritize sustainability (Lozano et al., 2015).

2. METHOD

This study utilized an explanatory design to investigate the connections among the variables via hypothesis testing methods. Since the study examined human behavior, which in psychology may involve both simple and complex responses, the research was designed to explain respondents' perceptions within an explanatory framework. The study applied a survey approach, in which data were gathered from selected participants through questionnaires used as the main research instrument.

This research utilized place attachment (X_1) and environmental awareness (X_2) as independent variables, whereas pro-environmental behavior was considered the dependent variable. The study included 5,325 active undergraduate students from Universitas Hang Tuah from seven faculties: the Faculty of Maritime Vocational Studies (FVP), Faculty of Engineering and Marine Science (FTIK), Faculty of Medicine (FK), Faculty of Social and Political Sciences (FISIP), Faculty of Law (FH), Faculty of Dentistry (FKG), and the Faculty of Psychology (F.Psi). Of this population, 114 students were chosen to be research participants.

The method of sampling employed was accidental sampling. Sugiyono (2014) defines accidental sampling as a type of non-probability sampling in which participants are selected according to their willingness and availability to participate. This method was deemed appropriate since the questionnaire was conducted online, enabling qualified participants to join on a voluntary basis. However, since the sampling method did not allow every student an equal selection opportunity, the findings should be generalized with care.

Operational definitions were established to provide clear specifications of the variables investigated in this study, allowing each variable to be measured objectively based on predetermined indicators (Noor, 2014). Three psychological instruments were administered to assess the research variables. Every scale utilized a five-point Likert format, offering response choices that spanned from strongly disagree to strongly agree.

The pro-environmental behavior scale was constructed based on Kaiser and Wilson (2004) theory. At the initial stage, the scale comprised 21 items representing six indicators: energy conservation, mobility and transportation, waste reduction, consumer behavior, recycling practices, and social conduct related to environmental conservation. An example item from this scale is, "I use a tumbler for drinking water while on campus." Following the item analysis, seven items, namely items 1, 3, 4, 6, 11, 14, and 17, several items were excluded because they failed to meet the required validity standards while the remaining items were maintained for the final analysis. The scale produced a mean score of 49.01 with a standard deviation of 7.416.

The place attachment scale was developed based on Scannell and Gifford's (2014) framework. At the beginning of the measurement process, this scale contained 18 items designed to assess person dimension, psychological process dimension, place dimension, place identity, and place dependence. One example item is, "The green and comfortable campus environment makes me feel comfortable studying and engaging in activities on campus." After the item analysis, item 12 was excluded because it did not satisfy the validity criteria. The final scale produced a mean score of 63.368 and a standard deviation of 8.322.

The environmental awareness scale was developed based on the theory of Sánchez and

Lafuente (2010). It consisted of 10 items measuring general beliefs or values, personal attitudes, and information or knowledge related to environmental issues. One example item is, "Maintaining environmental cleanliness contributes to preserving ecosystem balance." All items fulfilled the validity criteria and were therefore retained in the final analysis. The scale obtained a mean score of 40.877 and a standard deviation of 5.386.

The reliability of the instruments was evaluated using Cronbach's Alpha coefficient. Prior to conducting hypothesis testing, the normality of the data was evaluated using the Kolmogorov-Smirnov test. The findings showed that the distributions of place attachment ($p = 0.154 > 0.05$) and environmental awareness ($p = 0.172 > 0.05$) met the normality assumption. In comparison, pro-environmental behavior showed a minor non-normal distribution ($p = 0.006 < 0.05$). As a result, the study utilized a non-parametric statistical approach, especially Spearman's rank-order correlation analysis.

Table 1. Results of Validity and Reliability Testing of the Research Instruments.

Scale	k	CITC	α	Ket.
PEB	14	0.306–0.682	0.791	Valid; reliable
PA	17	0.351–0.741	0.902	Valid; reliable
EA	10	0.375–0.728	0.853	Valid; reliable

Note. PEB = Pro-Environmental Behavior; PA = Place Attachment; EA = Environmental Awareness; k = number of items; CITC = Corrected Item-Total Correlation; α = Cronbach's Alpha. Items were considered valid when CITC > 0.30, and scales were considered reliable when α > 0.70.

The results from the evaluations of validity and reliability indicated that the Pro-Environmental Behavior scale, made up of 14 items, produced Corrected Item–Total Correlation coefficients ranging from 0.306 to 0.682, and achieved a Cronbach's Alpha value of 0.791. The Place Attachment scale included 17 items, demonstrating Corrected Item–Total Correlation values between 0.351 and 0.741, and a Cronbach's Alpha coefficient of 0.902.

Additionally, the Environmental Awareness scale, consisting of 10 items, revealed Corrected Item–Total Correlation coefficients ranging from 0.375 to 0.728, along with a Cronbach's Alpha value of 0.853. Based on these findings, all research instruments were considered valid and reliable as each item exceeded the minimum item-total correlation threshold of 0.30, and every Cronbach's Alpha value was above 0.70.

Spearman correlation analysis was conducted to explore the connections among place attachment, environmental awareness, and pro-environmental behavior. The correlation coefficients were examined regarding the strength and direction of the relationships between the variables. All statistical analyses were performed using IBM SPSS Statistics version 25.

3. RESULT

3.1. Descriptive Analysis Results

Table 2. Students' Pro-Environmental Behavior Levels.

Level	Score Range	Frequency	Percentage (%)
Very High	> 60.1	9	7.9
High	53 – 59	31	27.2
Moderate	45 – 52	34	29.8
Low	38 – 44	31	27.2
Very Low	< 37	9	7.9
Total		114	100.0

Based on Table 1, most students demonstrated moderate levels of pro-environmental behavior (29.8%), followed by high (27.2%) and low (27.2%) levels. A smaller proportion of students were categorized as having very high (7.9%) and very low (7.9%) levels of pro-environmental behavior. These findings indicate that students' pro-environmental behavior tended to be distributed across moderate to high categories, although some students still demonstrated relatively low environmentally responsible behavior.

These findings indicate that most students showed a tendency toward pro-environmental behavior in the moderate to high categories. This suggests that, in general, students have developed an awareness of engaging in behaviors that support environmental preservation although such behavior has not yet been fully optimized. This situation may be associated with the growing concern among younger generations regarding environmental problems, including climate change, pollution,

waste disposal, and the significance of sustainable development.

In addition, students, as an educated group, have broad access to environmental information through lectures, social media, and campus activities. Nevertheless, the existence of students within the low and very low categories suggests that pro-environmental behavior still requires further improvement through environmental education initiatives, the cultivation of eco-friendly habits, and active student participation in conservation programs and sustainable environmental practices.

Table 3. Students' Place Attachment Levels.

Level	Score Range	Frequecy	Percentage (%)
Very High	> 75.9	12	10.5
High	67 – 75	24	21.1
Moderate	59 – 66	46	40.4
Low	51 – 58	29	25.4
Very Low	< 50	3	2.6
Total		114	100.0

The results showed that most students demonstrated moderate levels of place attachment toward their campus environment (40.4%). High levels of place attachment were found in 21.1% of students while 25.4% demonstrated low levels. In addition, 10.5% of respondents were categorized as having very high place attachment whereas only 2.6% showed very low levels. These findings suggest that students generally showed a moderate emotional connection to the campus environment.

The results indicated that most students exhibited a moderate degree of place attachment to the campus environment, accounting for 40.4% of the respondents. This condition indicates that students generally have formed an emotional bond, a sense of comfort, and a certain level of connectedness with the campus environment although the attachment has not yet reached a strong level.

This condition may be influenced by students' experiences while engaging in activities within the campus environment, such as attending lectures, interacting with peers and lecturers, and participating in both academic and non-academic activities. A supportive campus environment may foster students' sense of belonging and emotional closeness to the place. However, the presence of students in the low category (25.4%) and very low category (2.6%) indicates that students' attachment to the campus environment still needs to be strengthened through improvements in facility comfort, enhancement of social interactions, and greater student involvement in various campus activities.

Table 4. Students' Environmental Awareness Levels.

Level	Score Range	Frequency	Percentage (%)
Very High	> 49	8	7.0
High	44 – 48	30	26.3
Moderate	38 – 43	48	42.1
Low	33 – 37	19	16.7
Very Low	< 32	9	7.9
Total		114	100.0

The majority of students demonstrated moderate levels of environmental awareness (42.1%), followed by high levels (26.3%). Meanwhile, 16.7% of students showed low environmental awareness while smaller proportions were categorized as having very high (7.0%) and very low (7.9%) environmental awareness. Overall, these findings indicate that students tend to have moderate awareness regarding environmental issues and environmental preservation. To provide a clearer description of the respondents' characteristics, demographic data are presented as follows.

The findings indicate that most students displayed a moderate level of environmental awareness, accounting for 42.1%, whereas those in the high category made up 26.3%. This indicates that, overall, students have cultivated an understanding of and concern for environmental challenges, including pollution, climate change, waste management, and the significance of maintaining environmental sustainability.

This condition may be influenced by students' access to environmental information through lectures, social media, and various campus activities related to sustainability. However, the presence of students in the low category (16.7%) and very low category (7.9%) indicates that students' environmental

awareness still needs to be improved. Consequently, enhancing environmental education and fostering eco-friendly behavior are essential for students to comprehend environmental issues and to implement that awareness in their everyday lives.

Table 5. Faculty Distribution of Respondents

Faculty	Frequency	Percentage (%)
Faculty of Psychology	53	46.5
Faculty of Dentistry	20	17.5
Faculty of Engineering and Marine Science	27	23.7
Faculty of Social and Political Sciences	5	4.4
Faculty of Medicine	5	4.4
Faculty of Maritime Vocational	3	2.6
Faculty of Law	1	0.9
Total	114	100.0

Based on Table 5, most respondents were students from the Faculty of Psychology (46.5%), followed by the Faculty of Engineering and Marine Science (23.7%) and the Faculty of Dentistry (17.5%). The Faculty of Law contributed the smallest number of participants, with only one respondent (0.9%). Even so, all faculties at Universitas Hang Tuah were represented in the study.

This distribution indicates that, although the respondents were predominantly students from the Faculty of Psychology, this study still involved students from all faculties at Universitas Hang Tuah. Respondent representation from various faculties is important because it provides a more diverse overview of respondents' characteristics, particularly in understanding pro-environmental behavior, campus place attachment, and environmental awareness among students from different fields of study.

Table 6. Gender Distribution of Respondents.

Gender	Frequency	Percentage (%)
Male	55	48.2
Female	59	51.8
Total	114	100.0

Based on Table 4, the distribution of respondents by gender was relatively even. Female participants comprised 51.8% of the sample, whereas male participants represented 48.2%. This relatively balanced composition suggests that the research data were not substantially dominated by either gender group. Thus, the respondents' characteristics based on gender provide a relatively proportional representation of Universitas Hang Tuah Surabaya students who participated in this study.

3.2. Assumption Test Results

Data were obtained through an online questionnaire administered to students at Universitas Hang Tuah. Before conducting hypothesis testing, a normality test was carried out to identify the most appropriate statistical procedure. The Kolmogorov–Smirnov test was employed for the three variables under investigation: place attachment, environmental awareness, and pro-environmental behavior.

The findings demonstrated that the place attachment factor met the normality requirement, as shown by a significance level of 0.154 ($p > 0.05$). Likewise, the variable of environmental awareness was determined to be normally distributed, exhibiting a significance value of 0.172 ($p > 0.05$). On the other hand, the pro-environmental behavior variable showed no normal distribution since the significance value was 0.006 ($p < 0.05$). Since one variable did not satisfy the normality requirement, Spearman's rank correlation analysis was utilized for hypothesis testing. The findings of the normality test are shown in Table 7.

Table 7. Results of the Normality Test.

Variable	Test	Sig.	Interpretation
PA	K–S	0.154	Normally distributed
EA	K–S	0.172	Normally distributed
PEB	K–S	0.006	Not normally distributed

Note. PA = Place Attachment; EA = Environmental Awareness; PEB = Pro-Environmental Behavior; K–S = Kolmogorov–Smirnov. Since PEB was not normally distributed, hypothesis testing was conducted using Spearman's rank correlation.

The results of the normality evaluation indicated that not all variables followed a normal distribution, suggesting that the data did not completely satisfy the assumptions required for parametric testing. Consequently, Spearman's rank correlation analysis was employed to investigate the relationships among place attachment, environmental consciousness, and pro-environmental actions in students.

3.3. Correlation Test Results

Spearman's rank correlation analysis was performed to assess the connections between place attachment, environmental awareness, and pro-environmental behavior among students at Universitas Hang Tuah. This non-parametric statistical technique was selected since one of the variables failed to comply with the assumption of normal distribution.

The findings indicated a significant and positive correlation between place attachment and pro-environmental behavior ($r = 0.414$, $p < 0.001$). This implies that students who have a stronger emotional bond with their campus are more inclined to participate in activities that promote environmental preservation.

This result suggests that students who have higher environmental awareness are more likely to engage in eco-friendly activities. Of all the relationships examined in this study, the connection between environmental awareness and pro-environmental behavior demonstrated the strongest correlation.

Additionally, place attachment demonstrated a positive and significant correlation with environmental awareness ($r = 0.384$, $p < 0.001$). This finding indicates that students who feel a greater connection to their campus environment are likely to have increased levels of environmental awareness.

The findings reveal that both place attachment and environmental awareness are strongly linked to students' pro-environmental actions. Students who have a stronger bond with their campus environment and greater awareness of ecological issues are more likely to engage in sustainable practices.

Table 8. Result of Correlation Test

Variables	rs	Sig.	N	Status
PA – PEB	0.414	< 0.001	114	Positive; significant
EA –PEB	0.516	< 0.001	114	Positive; significant
PA – EA	0.384	< 0.001	114	Positive; significant

Note. PA = Place Attachment; EA = Environmental Awareness; PEB = Pro-Environmental Behavior; r = Spearman's correlation coefficient. **p < 0.01.

4. DISCUSSION

A total of 114 students took part in the study by filling out the online survey. The sample comprised 55 male students and 59 female students from different faculties at Universitas Hang Tuah. The gender distribution was relatively balanced, with female participants accounting for 51.8% of the sample and male participants comprising 48.2%.

Regarding faculty affiliation, respondents represented all faculties at Universitas Hang Tuah. However, the largest proportion of participants originated from the Faculty of Psychology, followed by the Faculty of Engineering and Marine Science and the Faculty of Dentistry. Therefore, although students from the Faculty of Psychology constituted the largest subgroup, the study sample still reflected participation from every faculty within the university.

The descriptive findings indicated that students typically exhibited moderate levels of environmental behavior, attachment to their place, and awareness of environmental issues. Pro-environmental behavior was primarily seen in the moderate category, with 34 students or 29.8% of those surveyed. The high and low categories each consisted of 31 students, equivalent to 27.2% of the sample. Meanwhile, 9 students or 7.9% were categorized as very high, and another 9 students or 7.9% were categorized as very low. These findings indicate that students generally have a sufficient degree of concern and awareness toward environmental preservation. Nevertheless, environmentally responsible behavior has not yet been maximally demonstrated by all respondents.

This result shows that students at Universitas Hang Tuah Surabaya have demonstrated behavioral tendencies that support environmental preservation. Pro-environmental behavior is commonly understood as deliberate action aimed at reducing harmful effects on the environment (Dono et al., 2010). Similarly, Kuswati et al (2021) describe pro-environmental behavior as

actions intended either to reduce environmental damage or to improve environmental quality.

Among university students, pro-environmental behavior may appear in everyday practices, such as disposing of waste in appropriate places, limiting the use of single-use plastics, conserving electricity and water, keeping the campus environment clean, and participating in environmental conservation activities. This aligns with Mkumbachi et al (2020), who found that a majority of students exhibited fairly high environmental awareness and eco-friendly behavior. Sumarlan et al (2024) also noted that students' awareness and behavior regarding the environment can be demonstrated through consistent actions, such as appropriate waste disposal, signifying their comprehension of the significance of upholding environmental cleanliness.

Nonetheless, the findings of this research suggested that students' pro-environmental actions had not yet reached a predominantly higher level. The majority of participants were placed in the moderate range, whereas a significant percentage belonged to the low category. This suggests that students' environmentally responsible actions are still being developed and need additional support through environmental education, encouragement of sustainable daily habits, and increased involvement in activities pertaining to environmental sustainability.

The inclination of students to participate in pro-environmental actions may relate to the growing consciousness among youth regarding global environmental issues, such as climate change, pollution, global warming, and the deterioration of marine and coastal ecosystems. As individuals in early adulthood, university students generally have wider access to information through formal education and digital media. This exposure enables them to encounter environmental campaigns, sustainability discourse, and ecological issues more frequently, which may enhance their sensitivity to environmental protection.

Moreover, the maritime identity of Universitas Hang Tuah Surabaya may play a role in fostering students' pro-environmental behavior. Exposure to issues related to maritime life, marine conservation, coastal pollution, and the sustainability of marine environments may encourage students to develop greater concern for their surroundings. An academic environment that promotes sustainability values can also support the growth of ecological responsibility in students' daily behavior.

The descriptive analysis also revealed that students' place attachment was mostly at a moderate level. A total of 46 students or 40.4% were categorized as having moderate place attachment. This was followed by 29 students (25.4%) being categorized as low, 24 students (21.1%) classified as high, 12 students (10.5%) were classified in the very high category, while 3 students (2.6%) were categorized as very low. These findings indicate that students generally experience a certain degree of emotional connection, comfort, and attachment to the campus environment although this attachment has not yet become strong among all students.

Place attachment, as described by Trilestari et al (2020), pertains to the emotional connection that people establish with a specific location through continuous experiences, social connections, and significant personal interactions. Scannell and Gifford (2010) further explain that place attachment comprises three interrelated dimensions, namely person, process, and place, which together shape individuals' emotional relationships with a particular environment. Therefore, place attachment goes beyond a physical bond; it encompasses emotional, cognitive, and behavioral aspects as well.

The results from Spearman's rank correlation analysis revealed a noteworthy positive correlation between place attachment and pro-environmental behavior ($r = 0.414$, $p < 0.001$). This suggests that students with a deeper emotional connection to their campus setting are more inclined to participate in pro-environmental actions.

From a psychological standpoint, a connection to a specific location can boost individuals' sense of duty and drive to safeguard the environment linked to that location. Individuals are typically more motivated to nurture and protect environments they view as significant and emotionally valuable. In this study, students who viewed the campus as a comfortable and meaningful environment tended to be more willing to maintain campus cleanliness, avoid behaviors

that could damage the environment, and take part in conservation-related activities.

This result is in line with Gifford and Nilsson (2014), who emphasized that psychological factors, including attachment to place, may shape environmental concern and behavior. Recent research has also shown that emotional bonding with places is positively linked to eco-friendly actions and involvement in sustainable practices (Ramkissoon et al., 2013). Similarly, Scannell and Gifford's (2014) theoretical framework suggests that emotional bonds with a place can influence how individuals think, feel, and behave toward their surrounding environment.

The current results align with earlier studies by Scannell and Gifford (2010) which indicated that a connection to natural settings is positively correlated with pro-environmental behavior. People with a deep emotional bond to natural environments often show greater readiness to take actions that promote environmental conservation. Additionally, Daryanto and Song (2021) found through a meta-analysis that place attachment positively correlates with pro-environmental behavior across various cultural and social contexts. The results suggest that individuals with a deeper attachment to their surroundings are more inclined to show greater commitment to environmental preservation. Moreover, Chang et al (2025) found that place attachment positively influences pro-environmental behavioral intentions in university students, with nature connectedness acting as a mediating factor.

In the context of students at Universitas Hang Tuah Surabaya, place attachment may develop because students spend a considerable amount of time on campus for academic activities, social interaction, organizational involvement, and the formation of meaningful personal experiences. Repeated and persistent interaction with the campus environment may foster a sense of belonging among students. The campus is therefore not merely perceived as a physical setting for learning but also as a social and psychological space that holds personal significance. Consequently, students with stronger emotional attachment to the campus may have greater motivation to maintain its cleanliness, comfort, and environmental sustainability.

The analysis indicated that students' awareness of the environment was typically at an average level. A total of 48 students (42.1%) were classified in the moderate range. Subsequently, there were 30 students (26.3%) in the high category, 19 students (16.7%) in the low category, 9 students (7.9%) in the very low category, and 8 students (7.0%) in the very high category. Overall, these results suggest that students typically possess a reasonable level of awareness and comprehension of environmental concerns, such as pollution, climate change, waste management, and conservation efforts.

The results of Spearman's rank correlation analysis showed a significant positive correlation between environmental awareness and pro-environmental behavior ($r = 0.516$, $p < 0.001$). This discovery indicates that students who possess higher environmental awareness are likely to demonstrate increased participation in eco-friendly behaviors. Since Spearman's correlation was utilized in this research, the outcome should be viewed as evidence of a meaningful relationship rather than a causal or predictive influence.

Students with greater environmental awareness tend to better grasp the effects of environmental degradation, potentially motivating them to implement more sustainable practices in their everyday routines. Environmental awareness includes not only understanding of environmental issues but also emotional investment and a tendency to engage in actions for environmental protection (Novotný et al., 2021). Chankrajang and Muttarak (2017) similarly reported that environmental awareness plays a significant role in promoting individuals' participation in conservation-related behaviors. Individuals with greater awareness of the consequences of environmental degradation tend to be more motivated to engage in actions that support environmental sustainability.

This result aligns with Yan et al (2024), who found a favorable link between environmental awareness and pro-environmental actions among university students. The research showed that students who exhibited greater environmental concern, heightened awareness of environmental risks, and stronger personal norms were more inclined to participate in eco-friendly actions in both individual and social settings. Similar

findings were presented by Fadzil et al (2021) in research involving university students in Malaysia, indicating that environmental awareness, moral standards, and various psychological factors were significantly associated with pro-environmental behavior.

Earlier research has shown that environmental consciousness can boost individuals' feelings of moral obligation and encourage sustainable practices, especially among college students (Vicente-Molina et al., 2013; Geiger & Wilhelm, 2021). This result is also aligned with Gifford and Nilsson (2014), who highlighted environmental concern and awareness as key determinants of environmentally responsible behavior. Likewise, Steg and Vlek (2009) posited those psychological elements like environmental values, awareness, and a feeling of personal responsibility for protecting the environment shape pro-environmental behavior.

Of all the relationships analyzed in this study, environmental awareness showed the most significant link to pro-environmental behavior. Specifically, the correlation between environmental awareness and pro-environmental behavior ($r = 0.516$, $p < 0.001$) was more robust than the relationship between place attachment and pro-environmental behavior ($r = 0.414$, $p < 0.001$). This indicates that students' awareness, comprehension, and interest in environmental matters were more closely linked to environmentally responsible actions than their emotional connection to the campus setting.

This finding supports Casaló and Escario (2018), who identified environmental concern and environmental knowledge as key factors associated with pro-environmental behavior among younger generations. Individuals who recognize the ecological consequences of their decisions tend to be more regular in practicing environmentally friendly behaviors in their daily routines. Geiger and Wilhelm (2021) similarly noted that awareness of the environment and a sense of moral duty correlate positively with pro-environmental actions. Additionally, Janmaimool and Khajohnmanee (2022) discovered that awareness and knowledge about the environment are crucial factors influencing pro-environmental behavior in both university students and urban populations.

The findings indicated a robust and positive relationship between place attachment and environmental awareness ($r = 0.384$, $p < 0.001$). This finding indicates that students who felt a deeper emotional connection to their campus surroundings also showed higher awareness of environmental concerns. Emotional connection to the campus may enhance students' sensitivity to the environmental conditions surrounding them. When students perceive the campus as meaningful and valuable, they may become more attentive to the importance of maintaining its cleanliness, comfort, and sustainability.

Although environmental awareness showed a stronger correlation with pro-environmental behavior, place attachment remains an important factor in explaining environmentally responsible behavior among students. Attachment to the campus environment may foster a stronger sense of belonging to the place where students engage in daily academic and social activities. When a place is perceived as personally significant and emotionally valuable, individuals are more likely to feel motivated to preserve its quality so that it remains comfortable, safe, and sustainable. This result aligns with the work of Otto and Pensini (2017), who noted that people with a greater connection to nature and ecological consciousness often exhibit more consistent eco-friendly behaviors. Therefore, the present findings indicate that both place attachment and environmental awareness are significantly related to students' pro-environmental behavior.

Overall, the results of this study suggest that environmentally friendly behaviors among college students are connected to both emotional and cognitive factors. Place attachment reflects students' emotional bond with their campus environment, whereas environmental awareness represents their knowledge, concern, and understanding of environmental problems. The interaction of these two aspects may help explain why students who feel connected to their campus and possess greater awareness of environmental issues are more likely to engage in environmentally responsible actions.

This study offers both theoretical and practical perspectives on the field of environmental psychology. Theoretically, the

results endorse the view that environmental behaviors are influenced by a combination of emotional and cognitive elements. Place attachment reflects students' emotional connection to their campus environment, whereas environmental awareness relates to their ecological knowledge, concern, and sense of responsibility. The discovery that environmental consciousness has a more significant connection to pro-environmental behavior than place attachment suggests that students' awareness, knowledge, and concern regarding environmental issues might be more directly related to their responsible actions toward the environment.

From a practical perspective, these results can act as an important guide for universities in creating and improving sustainability-focused programs or eco-friendly campus initiatives. Efforts to enhance students' environmental awareness can be implemented by incorporating environmental education into academic learning, conducting sustainability campaigns, promoting participatory waste management programs, and encouraging student involvement in campus-based conservation activities. In addition to increasing awareness, it is also important to strengthen students' attachment to the campus environment by creating a campus that is clean, comfortable, green, and socially supportive. An inclusive campus atmosphere that nurtures belonging could inspire students to participate in pro-environmental actions more regularly and sustainably.

Universities play an essential role in shaping students' values, attitudes, and behaviors through academic culture and educational initiatives centered on sustainability (Lozano et al., 2015). In the context of Universitas Hang Tuah, the university's maritime identity may serve as an important basis for promoting students' environmental responsibility. This can be achieved by increasing students' exposure to issues related to the marine environment, coastal pollution, maritime conservation, and sustainable development.

This study has several limitations that should be recognized. The application of accidental sampling may restrict the generalizability of the results since participants had unequal probabilities of being selected. Additionally, employing self-report questionnaires for data collection can lead to social desirability bias since respondents might not consistently give complete objective responses.

Third, this study focused only on place attachment and environmental awareness, while other potential factors associated with pro-environmental behavior were not examined. These factors may include social norms, environmental policies, personality traits, peer influence, environmental self-efficacy, personal values, campus organizational culture, and situational conditions.

Future studies are encouraged to employ more representative sampling techniques to allow broader generalization of the findings. Further research may also develop a more comprehensive model by including additional psychological, social, and situational variables related to pro-environmental behavior. Moreover, future research should consider using longitudinal or mixed-method approaches to achieve a deeper understanding of how students' pro-environmental behavior evolves and changes over time.

5. CONCLUSION

The findings of this research demonstrate that attachment to place and environmental consciousness were strongly and positively associated with pro-environmental actions among students at Universitas Hang Tuah. Students who have a greater emotional connection to their campus and increased environmental awareness often exhibit higher pro-environmental behaviors.

Descriptive findings indicated that most students demonstrated moderate levels of environmental behavior, connection to their location, and understanding of ecological problems. Additionally, female students exhibited greater environmental awareness and pro-environmental actions, while male students revealed marginally higher levels of attachment to place.

These findings suggest that emotional attachment to the campus environment and awareness regarding environmental issues are important psychological factors related to environmentally responsible behavior among university students. Therefore, universities are encouraged to strengthen environmental

education programs and create supportive campus environments to promote students' pro-environmental behavior.

6. ACKNOWLEDGEMENT

The authors would like to express their appreciation to Universitas Hang Tuah for aiding us in the publication process and for publishing this paper.

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