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Environmental Awareness and Social Empathy as Predictors of Ecological Citizenship among Generation Alpha

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Abstract

Purpose: This study aims to determine the influence of environmental awareness and social concern on the ecological citizenship of Generation Alpha students in Kartasura District.
Methodology: The research used a quantitative descriptive method with a correlational design. The sampling technique used was proportional random sampling. The research population consisted of 4,183 junior high school and MTs students, with a sample of 255 respondents.
Results: The results show that environmental awareness has a positive and significant effect on students' ecological citizenship, as evidenced by a Sig. value of < 0.001 (< 0.05) and a T-count of 7.296 > T-table 1.969, meaning that H_0 is rejected and H_1 is accepted. Conversely, social concern does not have a significant effect on ecological citizenship, as indicated by a Sig. value of 0.138 (> 0.05) and a T-count of 1.489 < T-table 1.969, so that H_0 is accepted and H_2 is rejected. These findings show that social concern does not always lead to ecological behavior. Simultaneously, environmental awareness and social concern have a significant effect on ecological citizenship, based on a Sig. value of 0.001 (< 0.05) and an F-count of 56.363 > F-table 3.031, meaning that H_0 is rejected and H_3 is accepted, which means that both independent variables have a combined effect on ecological citizenship.
Applications/Originality/Value: This study highlights the key role of environmental awareness in shaping Generation Alpha's ecological citizenship and offers practical guidance for schools, given that social concern does not always translate into ecological action.

Introduction Section

The global environmental crisis threatens ecosystem stability and humanity's future due to unsustainable human activities, including resource exploitation, industrialization, and excessive use of fossil fuels. Climate change intensifies global warming, melts ice caps, and increases the frequency and severity of extreme weather (Legg, 2021). Meanwhile, pollution, deforestation, and biodiversity loss further disrupt ecological sustainability (Cardinale et al., 2012; Laurance et al., 2014). In Indonesia, environmental pressures are compounded by river and plastic pollution (Jambeck et al., 2015), forest and peatland fires that significantly increase carbon emissions (Tacconi, 2016), and recurring clean water crises that indicate weaknesses in natural resource management systems (Laurance et al., 2014). These challenges are exacerbated by ineffective waste management: more than 34 million tons of waste are generated annually, and approximately 40% remain unmanaged (Kehutanan, 2024), resulting in air, soil, and water pollution that harms public health and ecosystems (Handayani et al., 2025). Excessive consumption and low environmental awareness drive waste accumulation (Rachman et al., 2025), whereas limited recycling facilities result in most waste being disposed of in substandard sites (Sari et al., 2023). Since effective waste management depends on regulations, technology, and community involvement (Troschinetz & Mihelcic, 2009), Indonesia needs integrated, sustainable policies supported by public education, stronger regulations, improved infrastructure, and incentives for environmentally responsible practices to safeguard the environment for future generations (Odum & Barrett, 1971).

However, low public awareness of waste sorting and management threatens environmental sustainability and hinders the achievement of sustainable development in Indonesia. (2020) reports that 50.8% of households in five major cities do not sort their waste, and 79% find this activity challenging, indicating limited ecological understanding. In fact, ideal sorting includes five categories according to the Ministry of Environment and Forestry guidelines. The weak practice reflects low environmental literacy and education that still focuses on cognitive aspects without encouraging real action (Labobar et al., 2023). According to Tilbury (2011), ecological education must build attitude transformation through direct experience. Meanwhile, Fatimah (2023) study also shows that waste sorting behavior increases with social campaigns, adequate facilities, and incentives and sanctions. Due to the lack of structural support, awareness is challenging to develop.

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Therefore, early education, sustainable campaigns, and cross-sector policies are needed to build a culture of environmental awareness.

In understanding the increasingly complex environmental crisis, it is important to examine how psychological factors shape ecological engagement, particularly among younger generations. This understanding requires a theoretical foundation to clarify the relationship among variables. First, Volk's (1990) theory of Environmental Citizenship explains that ecological citizenship behavior is influenced by three groups of factors: entry-level variables (e.g., environmental knowledge and awareness), ownership variables (attachment and concern for the issue), and empowerment variables (ability to act). In this model, environmental awareness (X_1) is a foundational component that fosters ownership, such that individuals feel responsible for taking action. Second, social empathy theory refers to the concept of altruistic motivation articulated by Batson et al. (2015), which posits that empathy motivates individuals to help because of a sincere concern for others. In the environmental context, social empathy (X_2) can foster moral sensitivity to the impacts of environmental damage on society, thereby strengthening the motivation to engage in pro-environmental actions. Third, various contemporary social behavior theories explain that a combination of awareness, attitudes, values, and affective factors shapes individual actions. When environmental awareness (X_1) is combined with social empathy (X_2), both can be strong predictors of ecological citizenship (Y). Awareness provides a cognitive foundation, while empathy strengthens the emotional motivation to engage in public interest-oriented ecological actions.

Awareness of ecological citizenship is important to cultivate because it entails individual moral responsibility toward the environment. Dobson (2003) explains that ecological citizenship is not only about public participation but also about awareness of the impacts of personal lifestyles and consumption on ecosystems. According to Dobson, as cited by Indah et al. (2024), this concept encompasses ecological responsibility in daily activities, including consumption and household waste management. However, public understanding remains low, as many people view environmental issues as solely the government's responsibility. In fact, change can start with simple actions such as not littering, conserving energy, and choosing environmentally friendly products. Ecological citizenship requires lifestyle changes consistent with global ecological principles (Mas'ud & Wibowo, 2025).

Environmental awareness is the foundation of ecological citizenship because understanding the importance of natural balance encourages participation in conservation. This includes knowledge, attitudes, and behaviors related to energy conservation and plastic reduction (Nurdiansyah, 2023). Emotional bonds with nature strengthen ecological empathy (Schultz, 2002). Moreover, they encourage pro-environmental behavior (Frantz & Mayer, 2014). Environmental awareness shapes ecological behavior through knowledge, values, and personal norms (Bamberg & Möser, 2007). In education, early contextual learning is crucial (Gifford & Nilsson, 2014), and integrating environmental education into the curriculum increases awareness and participation (Šimková et al., 2023). In Indonesia, low ecological awareness is caused by limited action-based education and a lack of social role models (Ardiansyah et al., 2025). Therefore, strengthening awareness requires a transformative approach that involves emotional, social, and spiritual aspects (Capra & Luisi, 2014).

Although environmental awareness is essential for ecosystem preservation, ecological issues are also tied to social dimensions, as harmony between humans and nature depends on strong social relationships. Social awareness refers to the ability to understand and respond to social conditions in one's surroundings, as evidenced by empathy, assistance, and participation in social activities (Halimah & Nurul, 2020). However, modern society's social awareness is declining due to individualism and digitalization, where virtual communication replaces deeper face-to-face interaction and reduces empathy (Jannah, 2018). Social awareness is also reflected in cooperation that transcends ethnic, religious, and social differences (Nugroho & Muhibbin, 2015). This tradition of cooperation constitutes a form of social capital that has long supported Indonesian society in addressing collective challenges, including poverty, environmental degradation, and natural disasters (Koentjaraningrat, 2009). Nevertheless, ongoing processes of modernization and globalization pose significant challenges to the sustainability of social solidarity, making efforts to strengthen social awareness increasingly crucial for maintaining social cohesion in an increasingly diverse and complex society (Fathoni, 2024).

Strengthening social awareness among Generation Alpha is a growing challenge, as this generation, true digital natives born after 2010, has grown up surrounded by rapid technological development (Prensky, 2012). Their strong technological abilities support access to information and innovation, yet heavy dependence on digital media reduces direct social interaction. Digital dominance encourages withdrawal from real social environments and increases comfort in controlled virtual spaces (Ramadhan, 2024). Moreover, highly open digital platforms often create algorithm-driven interaction bubbles that reinforce personal views and limit understanding of social and cultural differences (Livingstone & Third, 2017). This situation can hinder the development of cross-social empathy, which is crucial for maintaining harmony in Indonesia's multicultural society (Utami & Murwani, 2025).

Generation Alpha is characterized by a desire for quick results, high dependence on technology, and low resilience to social pressure (Purba et al., 2025). Their fast-paced digital lifestyle fosters an instant mindset, leading them to expect immediate results and to rely on technology for convenience and efficiency in their daily activities. This dependence reduces their ability to deal with conflict, pressure, and challenging situations. Excessive exposure to technology also weakens psychological resilience by reducing their ability to delay gratification and increasing frustration when faced with obstacles (Musdalifa et al., 2025). Early and sustained use of technology can further affect brain regions associated with emotion regulation and attention, influencing social and psychological balance (Giedd, 2012). Therefore, despite their

digital advantages, Generation Alpha needs to strengthen their social and emotional competencies to develop resilience, empathy, and adaptability in real-world dynamics.

Generation Alpha grew up with advanced technology and abundant information, yet their concern for environmental and social issues remains superficial and rarely manifests in concrete action. Studies show that they tend to express their fears through online activities without emotional involvement or concrete contributions (Kurniawan et al., 2025; Widodo & Rofiqoh, 2020). Instant gratification and digital lifestyles also reduce social empathy and deep ecological awareness by diverting attention to short-lived social media trends (McCrindle & Fell, 2021; Twenge, 2017). Despite their digital skills, they still need to develop strong social and ecological character to translate online awareness into direct participation in environmental conservation and social solidarity (Rozikin et al., 2025). Therefore, education must integrate technology with human values (Livingstone & Third, 2017). Moreover, strengthen empathy and awareness through action-based learning within their communities (Lickona, 1996).

Various studies show that environmental awareness and social empathy contribute to ecological behavior and prosocial actions (Bamberg & Möser, 2007; Kollmuss & Agyeman, 2010). However, most of these studies still focus on individual ecological behavior, so there has not been much discussion of how these two psychosocial factors can encourage broader, citizen-based ecological participation (Dobson, 2003; Stern, 2000). Furthermore, studies on Generation Alpha generally emphasize their digital characteristics and social development (McCrindle & Fell, 2021; Prensky, 2012), whereas understanding how ecological values and social empathy shape their engagement with environmental citizenship remains limited. In fact, this generation is projected to play an essential role in the future sustainability agenda. Therefore, this study addresses this gap by integrating environmental awareness and social empathy to explain forms of ecological citizenship participation among Generation Alpha. This group has not been widely discussed in prior literature.

The novelty of this study lies in its empirical analysis of the influence of environmental awareness and social concern on Generation Alpha's participation in ecological citizenship movements. Unlike previous studies, which generally view ecological citizenship as a normative concept or focus on teenagers and adults, this study places Generation Alpha as the subject of study by considering the distinctive characteristics of the digital era, such as digital lifestyles, rapid decision-making, and the dynamics of social empathy. This approach provides a theoretical contribution to the development of generation-based ecological citizenship studies and a practical contribution to education by designing relevant and applicable ecological character-learning strategies.

The uniqueness of this study lies in its focus, which not only examines ecological citizenship as a theoretical concept but also explores how environmental awareness and social concern influence Generation Alpha's ecological participation within today's digital lifestyle. This study adopts a contextual approach by examining contemporary realities among youth, including their engagement with digital media, rapid decision-making, and declining social empathy. With this perspective, the research is expected to contribute to the academic literature and provide practical benefits for education, particularly by designing relevant, contextual, and applicable ecological character-learning strategies for future generations. Based on the theoretical foundation, literature review, and conceptual framework described above, the research hypotheses are formulated as follows. First, it is hypothesized that environmental awareness (X_1) significantly influences participation in ecological citizenship movements (Y). Second, it is hypothesized that social concern (X_2) significantly influences participation in ecological citizenship movements (Y). Third, it is hypothesized that environmental awareness (X_1) and social concern (X_2) significantly influence participation in ecological citizenship movements (Y).

Method

This study employs a quantitative descriptive correlational design to examine the influence of independent variables on the dependent variable, specifically the effects of environmental awareness and social concern on participation in ecological citizenship movements among Generation Alpha. The sampling technique applied in this research is proportional random sampling. The population comprises 4,183 junior high school students and MTs students in Kartasura Subdistrict, and the sample comprises 255 students. Respondents were selected based on predetermined criteria, namely students enrolled in grades VIII and IX of junior high school or MTs, aged between 12 and 15 years. All data collected in this study were used solely for academic purposes, and the confidentiality of respondents' information was strictly maintained. The data were not disclosed to any parties outside the scope of this research. Data analysis was conducted using SPSS version 29 and included classical and hypothesis testing. Classical assumption tests were performed to ensure that the linear regression model met the fundamental requirements for producing valid and unbiased estimates, namely the Best Linear Unbiased Estimator (BLUE) (Maddala, 1992). These tests include normality, multicollinearity, linearity, and heteroscedasticity tests. Subsequently, hypothesis testing was conducted using partial t-tests, simultaneous F-tests, and multiple linear regression (Ghozali, 2018).

Data collection in this study was conducted by distributing a questionnaire via Google Forms. The questionnaire consisted of 40 items, measured using a five-point Likert scale. The items were compiled using indicators derived from theories relevant to each research variable. The environmental awareness variable refers to the Hungerford & Volk (1990) theory, the social concern variable refers to the Batson et al. (2014) theory, and the ecological citizenship variable refers to the Dobson (2003) theory. To ensure the validity and reliability of the collected data, an instrument test was conducted,

including assessments of validity and reliability. The validity test was used to assess the validity or authenticity of a questionnaire. Questionnaires play an essential role in ensuring the accuracy of research data, which is highly dependent on the quality of the instruments used. Therefore, the questionnaire's quality and accuracy were assessed using validity and reliability tests (Ghozali, 2018). The criteria for assessing data validity are based on comparisons between the tabled r value and the computed r value. The statement item is deemed legitimate if the computed r value is more than the table r value; nevertheless, if the computed r value is less than the table r value, the item is considered invalid. The validity test was conducted on 40 respondents, and the results indicated that all statement items for the variables of environmental awareness and social concern were deemed valid, as their correlation coefficients exceeded the r table value of 0.312. However, five items on the ecological citizenship variable were deemed invalid and were removed from the research instrument. Furthermore, a reliability test of a research instrument is a procedure used to assess the extent to which the questionnaire used for data collection exhibits consistency (Dewi & Sudaryanto, 2020). The reliability test results showed that all variables had a Cronbach's Alpha value greater than 0.60, which means that the research instrument is reliable and can be used to measure the variables under study

Results and Discussions

Data Descriptions

Respondent Descriptions

Respondent identity is essential for describing respondents' characteristics and backgrounds in the study. In this study, respondent identity is presented through several main categories. First, with respect to gender, this study used a sample of 255 students, comprising 32.55% male and 65.88% female, indicating a preponderance of female students. Second, with respect to age, this study reports that among the 255 respondents, four age groups were identified. Most of the samples were 14 years old (46.67%), followed by 13 years old (35.69%), 15 years old (14.51%), and 12 years old (1.57%). Third, by grade level, this study shows that two grade levels were represented among the 255 students surveyed. The highest percentage was in grade 9 (52.55%), whereas grade 8 was 45.88%. Fourth, with respect to area of residence, the results showed that among the 255 respondents, 49.41% lived in rural areas and 49.02% in urban areas. Fifth, regarding involvement in environmentally friendly activities, the results showed that most respondents reported involvement: 95.69% answered “Yes” and 4.31% answered “No.” Sixth, regarding the types of environmentally friendly activities that were participated in, the results showed that, among 255 respondents, 7.84% participated in school waste banks, 3.14% in waste management and recycling, 20.00% in planting and caring for plants, and 28.24% in school cleanliness programs. The most frequently participated-in activity was mutual assistance, accounting for 40.78%.

Descriptive Analysis

Data analysis typically involves descriptive statistics for the variables environmental awareness (X_1), social awareness (X_2), and ecological citizenship (Y). These measurements include maximum, average, and minimum values.

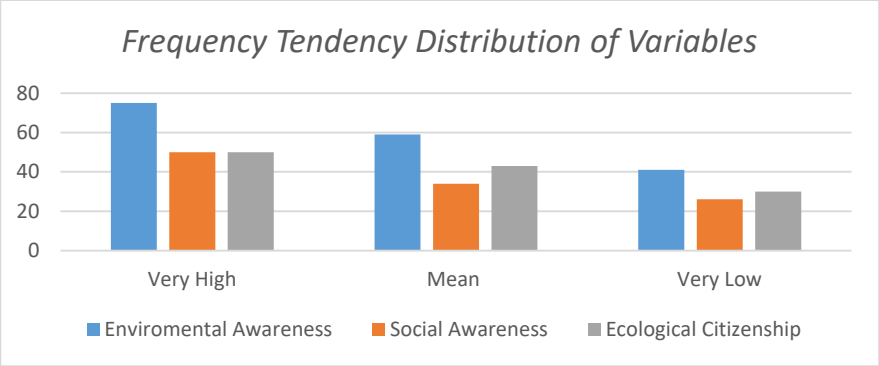

Figure 1. Diagram Data Interval
Source: Data Processed by Researchers, 2025

Based on Figure 1, in the very high category, environmental awareness has the highest value at 75 (29.41%), followed by social concern and ecological citizenship, each at 50 (19.61%). This indicates that most respondents have a relatively strong awareness of environmental issues. In the “mean” category, environmental awareness also ranks highest with a score of 59 (23.14%), followed by ecological citizenship at 43 (16.86%) and social awareness at 34 (13.33%). Meanwhile, in the *very low* category, the lowest scores were for social concern (26; 10.20%), ecological citizenship (30; 11.76%), and environmental awareness (41; 16.08%). Overall, this pattern indicates that the research participants exhibit a relatively high level of ecological awareness compared with the other two variables. However, social awareness tended to be lower,

suggesting that although understanding of the environment was quite good, the application of empathy and social action toward ecological issues still needed strengthening. This condition indicates that environmental-based citizenship education should place greater emphasis on the interrelationships among awareness, concern, and ecological responsibility.

Data Analysis Results

Prerequisite Analysis Test

First, a normality test was conducted to assess whether the regression model residuals were normally distributed. Ghozali (2018) emphasizes that normally distributed residuals characterize an appropriate regression model. The normality assessment can be conducted using the Kolmogorov-Smirnov or Shapiro-Wilk tests. The decision rule states that if the Asymp. Sig. (2-tailed) value is greater than 0.05, the residuals are considered normally distributed, whereas a value below 0.05 indicates non-normal distribution. The test results show a Sig. Value of.200 > 0.05, confirming that the residuals are normally distributed. Consequently, the research variables satisfy the normality assumption.

In addition, multicollinearity diagnostics were conducted to assess whether the independent variables in the regression model exhibited strong correlations. According to Gujarati (2009), multicollinearity can complicate the interpretation of the individual effects of independent variables. Multicollinearity is detected by looking at the Variance Inflation Factor (VIF) and Tolerance values. A regression model is considered free of multicollinearity if the VIF is < 10 and the tolerance is > 0.10. The results of the multicollinearity test indicate that the independent variables, environmental awareness (X_1) and social concern (X_2), have tolerance values greater than 0.10 (0.612). Meanwhile, the VIF value is 1.634 < 10. Therefore, there are no signs of multicollinearity among the independent variables in the regression model.

After the multicollinearity test, a linearity test is conducted to assess whether the independent and dependent variables are linearly related. As stated by Santoso (2010), multiple linear regression analysis is valid only when the relationship among variables is linear. Linearity can be assessed using the Test of Linearity in analysis of variance (ANOVA). The decision rule indicates that a Sig. A p-value below 0.05 indicates a linear relationship, whereas a p-value above 0.05 indicates a non-linear relationship. A value above 0.05 indicates a non-linear relationship. The results of the linearity test reveal that the relationship between environmental awareness and ecological citizenship is linear, as indicated by a Sig linearity value of 0.026 (< 0.05). Likewise, the connection between social concern and ecological citizenship is linear, with a Significant Effect. Linearity value of 0.001 (< 0.05). These findings confirm a statistically significant linear relationship between the variables, indicating that the regression model satisfies the linearity assumption and can be further analyzed using multiple regression techniques.

Furthermore, a heteroscedasticity test was conducted to assess whether the variance of the residuals is constant across observations. This test is essential to ensure that the regression model meets the classical assumption of homoscedasticity. According to Ghozali (2018), a sound regression model should not exhibit heteroscedasticity, meaning that the residuals have equal variance. The decision criterion states that heteroscedasticity is absent when the probability (Sig.) value exceeds 0.05, while a value below 0.05 indicates its presence. The test results show that the Sig. The value for the environmental awareness variable is 0.754 (> 0.05), and for the social concern variable is 0.901 (> 0.05). These results indicate that the regression model is not heteroscedastic. Therefore, the model satisfies the homoscedasticity assumption and is suitable for subsequent statistical analysis.

Hypothesis Test

The results of hypothesis testing provide the basis for assessing the validity of the hypotheses formulated in this study. The first hypothesis is tested using a partial t-test, which examines the effect of each independent variable on the dependent variable while controlling for the other independent variables (Ghozali, 2018). According to the decision criteria, when the calculated t value is greater than the critical t value, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted, indicating that the independent variable has a significant partial effect on the dependent variable. Conversely, if the calculated t value is smaller than the critical t value, H_0 is accepted, and H_a is rejected, meaning that the independent variable does not have a significant partial influence on the dependent variable.

Table 1. T-Test Results (Partial)

Variabel	t-table	t-hitung	Sig.
Environmental Awareness	1.969	7.296	<,001
Social Awareness	1.969	1.489	.138

Source: Data Processed by Researchers, 2025

Based on Table 1, the t-test results indicate that, first, the Sig. The value for environmental awareness obtained a Significant Result. value of < 0.001 (<0.05) and a T-value of 7.296 > t-table 1.969, so H_0 was rejected and H_1 was accepted. Thus, environmental awareness significantly influences ecological citizenship. Second, the Sig. The value for social

concern obtained a Significant Result. Value of 0.138 (>0.05) and a T-value of 1.489 < T-table 1.969, so H_0 is accepted, and H_2 is rejected, meaning that there is no significant effect of social concern on ecological citizenship.

Second, a simultaneous F-test is used to assess whether all independent variables in the regression model collectively affect the dependent variable (Ghozali, 2018). As explained by Siregar (2017), this test is conducted by comparing the calculated F value with the critical F value at the 5% significance level ($\alpha = 0.05$). If the calculated F value exceeds the critical F value, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted, indicating that the independent variables have a statistically significant joint influence on the dependent variable. In contrast, when the calculated F value is lower than the critical F value, H_0 is accepted, and H_a is rejected, implying that the independent variables do not simultaneously affect the dependent variable.

Table 2. F-Test Results (Simultaneous)

Variable	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.519.880	2	759,940	56,363	<,001[b]
Residual	3.397.705	252	13,483		
Total	4.917.584	254			

Source: Data Processed by Researchers, 2025

Based on the results presented in Table 2, the p-value is 0.001, which is less than 0.05, and the calculated F-value is 56.363, which exceeds the F-table value of 3.031. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_3) is accepted. This finding indicates that environmental awareness and social concern simultaneously have a significant effect on ecological citizenship.

Furthermore, multiple linear regression is used to examine the combined effect of the independent variables on the dependent variable. This analytical technique is used to determine the extent to which the independent variables (X_1 and X_2) explain variations in the dependent variable (Y). As stated by Sugiyono (2019), multiple regression analysis is appropriate for studies that aim to analyze the impact of two or more independent variables on a single dependent variable, while also identifying the direction and magnitude of the relationships among variables.

Table 3. Multiple Linear Regression Test Results

Variabel	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	*Std. Error*	*Beta*		
(Constant)	18.583	2.332		7.970	<,001
Environmental Awareness	.357	.049	.488	7.296	<,001
Social Awareness	.104	.070	.100	1.489	.138

a. Dependent Variable: Ecological Citizenship

Source: Data Processed by Researchers, 2025

Based on Table 3 and the results of the analysis above, the regression equation model can be formulated as follows:

$$Y = 18.583\ (a) + 0.357(X_1) + 0.104(X_2) + e$$

The multiple regression equation yields, among other results, Constant (a) = 18.583, indicating that when environmental awareness and social concern are zero, ecological citizenship is 18.583. Environmental awareness coefficient (X_1) = 0.357, meaning that every one-unit rise in environmental awareness will increase ecological citizenship by 0.357, presuming that other factors do not change. Social awareness coefficient (X_2) = 0.104, meaning that each one-unit increase in social awareness will increase ecological citizenship by 0.104, presuming that other factors do not change. The results of the analysis indicate that environmental awareness and social concern influence ecological citizenship (Y), both partially and simultaneously. However, based on the t-test, only environmental awareness was significantly associated, whereas social concern was not. Thus, environmental awareness is the most decisive factor in shaping ecological citizenship. According to Balundė et al. (2019), environmental awareness reflects an individual's understanding of the relationship between human behavior and ecological conditions, as well as a sense of moral responsibility to preserve nature. In the context of social concern, it is essential to identify indicators that reflect the extent to which a person demonstrates empathy and concern for their social environment. According to Batson et al. (2014), these indicators include: 1) Willingness to help others voluntarily, 2) Active involvement in social or humanitarian activities, and 3) Assisting when others are in need.

The Influence of Environmental Awareness on Ecological Citizenship

These findings indicate that individuals who are aware of environmental issues tend to show greater concern, responsibility, and participation in preserving the natural environment around them. Environmental awareness is not merely cognitive knowledge, but also a moral awareness of the interrelationship between human behavior and ecosystem balance. According to Dobson (2003), ecological citizenship arises from individuals' moral awareness of the impact of their personal behavior on the ecosystem, with environmental awareness serving as the foundation for cultivating citizens' ecological responsibility. This is also in line with Hungerford & Volk (1990) environmental behavior model, which places ecological awareness as the initial stage (entry-level variable) in the formation of environmental behavior. Several previous studies reinforce this finding. Nurdiansyah & Komalasari (2023) explain that environmental awareness plays a vital role in shaping communities' ecological citizenship through community-based education and empowerment activities. They found that communities with high levels of environmental consciousness are more engaged in social activities, such as tree planting, waste management, and environmental cleanliness campaigns. This shows that environmental awareness not only fosters individual concern but also builds collective responsibility for ecosystem sustainability. Frantz & Mayer (2014) found that emotional attachment to nature (connectedness to nature) is a major predictor of pro-environmental behavior. People who have a strong connection to nature are more motivated to take concrete actions to protect the environment, such as reducing plastic waste and conserving natural resources. This research confirms that environmental awareness encompasses emotional dimensions and is not merely a matter of rational knowledge. Gifford & Nilsson (2014) further add that personal values and supportive social norms are meaningful contexts for the formation of ecological awareness, as social interactions reinforce environmental values in society. Meanwhile, Balundė et al. (2019) demonstrate that ecological awareness is positively associated with environmental conservation behavior across various countries. They found that the higher a person's awareness of global environmental issues, the greater their tendency to participate in energy conservation and recycling initiatives, conservation efforts, and environmentally friendly transportation. Šimková et al. (2023) added that contextual environmental education can increase community participation in nature conservation activities. Thus, environmental awareness is an essential factor that encourages individuals to act as ecological citizens, as it helps them recognize that ecosystem sustainability is a shared moral responsibility.

The Influence of Social Concern on Ecological Citizenship

These findings indicate that social concern does not significantly affect ecological citizenship, as concern for social welfare does not necessarily encourage ecological behavior. Put otherwise, an individual who possesses a great degree of Empathy for others does not necessarily translate into the same concern for the environment. This condition can be explained by the theory of Social Empathy proposed by Segal (2011), which states that social empathy fosters sensitivity to others' conditions; however, without ecological awareness, this empathy does not extend to responsibility for the environment. This means that individuals may have social sensitivity, but have not internalized the understanding that social welfare and ecological sustainability are interrelated. Within the framework of Ajzen (1991) *Theory of Planned Behavior,* a person's intention to behave ecologically is formed from the interaction between personal attitudes, social norms, and perceived behavioral control. If the dimension of environmental awareness (attitude) is weak, then social concern will not be strong enough to influence ecological behavior because social norms do not yet point to environmental responsibility. The results of this study align with those of Istiana (2021), who found that social concern has a greater influence on prosocial behavior than on ecological behavior. This means that social values such as mutual aid and solidarity do not necessarily transform into ecological awareness without a strong understanding of the environment. Similar results were reported by Ningsi & Suzima (2021), who found that the social awareness of urban communities is not always aligned with environmental awareness, as social orientation often focuses on interpersonal relationships rather than on relationships between humans and nature. In addition, Yuniarto (2013) concluded that the low correlation between social concern and ecological citizenship is attributable to differences in value orientation: social concern is interpersonal, whereas ecological citizenship requires ethical awareness of the environment and ecosystem sustainability. However, Jannah (2018) shows that strengthening social empathy through community activities can increase people's ecological awareness, while Rahmayanti et al. (2025) found that film-based learning that contains social and environmental values can foster ecological citizenship in students. This means that although social awareness does not have a direct effect, it remains morally essential for strengthening the affective dimension of ecological citizenship formation.

The Influence of Environmental Awareness and Social Concern on Ecological Citizenship

These results confirm that environmental awareness is an essential factor in shaping ecological citizenship. The higher the level of environmental awareness, the greater the likelihood that individuals will exhibit environmentally conscious behavior. Thus, environmental awareness plays a key role in fostering attitudes of ecological citizenship. Environmental awareness provides a cognitive foundation through understanding and moral reflection, while social concern provides an affective foundation through empathy and solidarity toward others and the environment. The interaction between the two gives rise to *ecological citizenship identity*, which is the identity of citizens who are aware of the interconnection between social life and ecology. These findings align with Dobson (2003), who argues that ecological citizenship is formed by

integrating individual moral awareness with social responsibility towards the environment. In Naess's (1990) view, through the *Theory of Ecological Self*, individuals with high ecological awareness and social empathy will expand their identity to encompass both nature and society, rather than exist as separate entities. The results of this study align with the findings of Yuliyani & Khoirunnisak (2025), which show that strengthening social care and environmental awareness values through education grounded in local wisdom can shape the ecological citizenship identity of the community surrounding the Kaligarang watershed. The study confirms that the social and ecological dimensions interact in fostering the character of citizens who care about environmental sustainability. Consistent with this, Rahmayanti et al. (2025) found that film-based learning can promote environmental awareness and social concern among students by encouraging reflection on ecological citizenship values. In addition, Balundė et al. (2019) showed that the interaction between social values and ecological awareness is positively associated with pro-environmental behavior. In practice, the results of this study confirm that ecological character education should integrate environmental knowledge, social empathy, and direct involvement in nature conservation activities. The Alpha generation living in the digital age needs learning that can transform theoretical awareness into concrete ecological actions, for example, through *eco-school* programs, green community collaborations, and environmentally friendly digital campaigns (Ramadhan, 2024; Twenge, 2017). Thus, ecological citizenship is formed through a combination of environmental awareness as a cognitive basis and social concern as an affective basis, which together foster moral responsibility for the sustainability of the earth.

Conclusions

The study's findings and data analysis indicate that environmental awareness has a favorable and significant influence on the ecological citizenship of Generation Alpha, making it the most important factor in the research model. Meanwhile, social concern has no significant effect, indicating that empathy among individuals is insufficient to encourage ecological behavior without adequate environmental awareness and understanding. Simultaneously, both variables continue to influence ecological citizenship; however, strengthening environmental education is key to developing the ecological character of the younger generation. The study's findings indicate that when students have high environmental awareness, they tend to develop behaviors and identities as ecological citizens. This awareness not only shapes concern for nature but also fosters a sense of moral and social responsibility to sustain life. This confirms that citizenship education must integrate ecological dimensions through contextual learning, reflective practices, and action-based activities in schools and communities. Thus, these findings can inform schools and policymakers in designing learning programs that foster ecological citizenship as part of national character.

Suggestions

Based on the study results, several suggestions can be made. The Alpha generation, who are currently in junior high school/MTs, are expected to continue to develop their concern for the environment and increase their ecological awareness in their daily lives. This is important so that they can understand various environmental issues more deeply and are motivated to play an active role in preserving nature. In addition, the Alpha generation needs to cultivate empathy toward others and the environment. This empathy can be manifested through simple actions, such as maintaining cleanliness, conserving resources, and participating in social and environmental activities at school and in the community. By instilling empathy from an early age, this generation can become responsible citizens who are socially sensitive and committed to environmental sustainability.

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