



ECO-ANXIETY AND GREEN SELF-IDENTITY AS PREDICTORS OF SUSTAINABLE CONSUMPTION BEHAVIOR AMONG GENERATION Z STUDENTS

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ABSTRACT

Environmental degradation, climate change, and unsustainable consumption patterns have become pressing global challenges, particularly among Generation Z students who are increasingly exposed to sustainability-related information. Despite increasing environmental awareness, sustainable consumption behavior remains inconsistent, highlighting the need to investigate psychological factors influencing environmentally responsible behavior. This study aims to examine the influence of ecological anxiety and green self-identity on sustainable consumption behavior among Generation Z students. A quantitative survey design was used involving 185 vocational school students in Tangerang, Banten, Indonesia, who were selected through purposive sampling. Data were collected using a structured questionnaire and analyzed using multiple linear regression after meeting validity, reliability, and classical assumptions. The results showed that ecological anxiety had no significant effect on sustainable consumption behavior ($\beta = 0.127$, $p = 0.056$), while green self-identity had a significant positive effect ($\beta = 0.425$, $p < 0.001$). Simultaneously, ecological anxiety and green self-identity significantly predicted sustainable consumption behavior, with the regression model explaining 23.0% of the variance in students' sustainable consumption behavior (Adjusted $R^2 = 0.230$). These findings suggest that internalization of environmental values through green self-identity plays a more influential role than environmental anxiety in encouraging sustainable consumption practices among Generation Z students. This study contributes to sustainability education by providing empirical evidence to support educational strategies that strengthen environmental identity and promote the achievement of Sustainable Development Goals (SDGs) 4, 12, and 13.

Keywords: *eco-anxiety; green self-identity; sustainable consumption behavior; generation z; sustainable education*

INTRODUCTION

Environmental change is one of the most pressing global issues of the 21st century due to its increasingly widespread impacts on natural systems and human life. This phenomenon is characterized by increasing weather and climate extremes (Robinson, 2021), biodiversity loss, and environmental degradation due to human exploitation (Bullock et al., 2020). Furthermore, unsustainable consumption patterns have become a hallmark of modern life (Garcia et al., 2021), exacerbating resource depletion, pollution, and various environmental damages, largely driven by human activities (Yang et al., 2024). These conditions led to the birth of Sustainable

Development Goal (SDG) 12 on responsible consumption and production as an effort to achieve sustainability (Tasaki et al., 2021), which was further strengthened by SDG 13 on climate action to support climate change mitigation measures (Coenen et al., 2022).

Among various demographic groups, Generation Z occupies a strategic position as the generation projected to dominate various aspects of global life, including promoting sustainability. Generation Z (Gen Z) is defined as individuals born in 1997 or later (Mavrin et al., 2024). This generation's concern for environmental preservation is reflected in the participation of millions of its members in global protests urging policymakers to take action to save the environment (Borah et al., 2024). Amidst massive environmental degradation and exposure to information through academic media, social media, and public campaigns, Generation Z also contributes to digital platform-based environmental campaigns that are able to increase environmental awareness and concern among young people. However, this increased awareness is not always followed by sustainable consumption behavior (Aminulloh et al., 2024).

The concept of sustainable consumption was first introduced at the 1992 UN Earth Summit in Rio as an effort to encourage consumers to purchase environmentally friendly products and adopt a lifestyle that prioritizes reduced consumption and the selection of quality products in the long term (Minh & Quynh, 2024). According to Ebrahimi et al. (2026), sustainable consumption encompasses the behavior of choosing environmentally friendly products and reducing resource use at all stages of consumption, from acquisition, use, and disposal. Various studies have also identified environmental knowledge (Saari et al., 2021), environmental awareness (Nie et al., 2021), and social norms (Pristl et al., 2021) as factors influencing sustainable consumption. Meanwhile, Yaqub et al. (2024) emphasized that sustainable consumption is also influenced by the socio-psychological context. Therefore, the psychological aspects that shape sustainable consumption behavior, especially among Generation Z students, require further study.

One psychological construct related to environmental issues is ecological anxiety, which is anxiety about current and future environmental threats, such as climate change, biodiversity loss, and pollution (Samarawickrama et al., 2025). Phan et al. (2026) explain that ecological anxiety differs from generalized anxiety disorder because it is a rational response to real, global environmental threats. Ecological anxiety is also a growing concern among Generation Z, particularly in regions vulnerable to climate change (Ribeiro et al., 2025). This condition is characterized by emotions such as anger, hopelessness, guilt, as well as feelings of insecurity, uncertainty, and loss of control (Žukauskienė et al., 2025). Although often viewed as a negative emotional response, ecological anxiety can encourage individuals to adopt more environmentally responsible behaviors (Davì et al., 2026).

A relevant psychological factor in this context is green self-identity, which refers to the extent to which an individual views themselves as environmentally conscious (Mason et al., 2025). Alvin (2018) defines green self-identity as an individual's evaluation of their mental attitude toward green consumption. Individuals with a strong green self-identity generally have a sense of responsibility, pride, and meaning in supporting environmental protection (Adhitama, 2019). Furthermore, green self-identity plays a role in aligning an individual's values, beliefs, and actions with those of their social group (Sari et al., 2025), thus encouraging behaviors aligned with environmental values, including sustainable consumption. In addition to supporting pro-environmental behavior, green self-identity also fulfills consumers' self-verification



needs and increases satisfaction with environmentally friendly products (Suliatiana & Kuswati, 2024).

Although various studies have examined environmental attitudes and behavioral intentions, studies on the role of ecological anxiety and green self-identity in shaping sustainable consumption behavior in Generation Z students are still limited, especially in the context of sustainability education. This gap indicates the need for a deeper understanding of the contribution of emotional and identity factors to responsible consumption behavior. Therefore, this study aims to analyze the influence of ecological anxiety and green self-identity on sustainable consumption behavior in Generation Z students. The results are expected to enrich the study of environmental psychology and sustainability education and provide input for educational institutions in encouraging sustainability-oriented behavior among the younger generation.

METHOD

This study used a quantitative approach with a cross-sectional survey design to analyze the influence of ecological anxiety and green self-identity on sustainable consumption behavior among Generation Z students. A total of 185 tenth-grade students at a vocational high school in Tangerang, Banten, were selected through purposive sampling. Data were collected using a five-point Likert-scale based online questionnaire adapted from a validated instrument. The quality of the instrument was tested through validity and reliability tests, followed by classical assumption tests. Hypothesis testing was conducted using multiple linear regression through t-tests, F-tests, and coefficient of determination (R^2) with IBM SPSS Statistics at a significance level of 0.05.

RESULTS AND DISCUSSION

The demographic profile of the respondents demonstrates adequate representation of Generation Z students in vocational education. The relatively balanced gender distribution and homogeneous age range support the consistency of the analysis by reducing demographic variation. Despite coming from three different vocational programs, all respondents were at the same educational level, thus supporting the internal validity of the study and increasing the relevance of the findings to various vocational education contexts with comparable characteristics.

Table 1. Demographic Characteristics of Respondents

Characteristics	Category	Frequency (n)	Percentage (%)
Gender	Male	98	53.0
	Female	87	47.0
Year of Birth	2008	3	1.6
	2009	175	94.6
	2010	7	3.8
Grade	Grade 10	185	100.0
Study Program	TJKT	77	41.6
	MPLB	67	36.2
	AKL	41	22.2

Table 1 presents the demographic characteristics of 185 tenth-grade students from a vocational high school in Tangerang, Banten, Indonesia, who served as respondents to the study. The distribution of respondents by gender was relatively balanced, consisting of 98 male students (53.0%) and 87 female students (47.0%), thus providing proportional representation in the analysis. The majority of respondents were born in 2009 (94.6%), followed by 2010 (3.8%) and 2008 (1.6%), indicating a relatively homogeneous Generation Z cohort. All respondents came from the same educational level (tenth grade) with backgrounds in three expertise programs, namely Computer Network and Telecommunication Engineering (TJKT) (41.6%), Office Management and Business Services (MPLB) (36.2%), and Accounting and Institutional Finance (AKL) (22.2%). These characteristics provide uniformity at the educational level while reflecting the diversity of fields of expertise, thus supporting the internal validity of the study and providing an adequate basis for analyzing the relationship between ecological anxiety, green self-identity, and sustainable consumption behavior in Generation Z students in vocational education.

Before testing the hypothesis, the validity of the research instrument was tested to ensure that each item was able to measure the construct being studied. The validity test was conducted using the Pearson Product-Moment correlation based on the results of a pilot study of 35 respondents. Validity was determined by comparing the calculated r-value with the r-table (0.334) at a significance level of $\alpha = 0.05$, the item was declared valid if the calculated r-value > r-table and p-value < 0.05. The results of the validity test are presented in the following table.

Table 2. Results of Instrument Validity Test

Variable	Initial Valid Items		Eliminated Items	r-count Range	Decision
EAn	10	7	3	0.373–0.478	<i>Partially Valid</i>
GSI	10	10	0	0.378–0.753	<i>Valid</i>
SCB	10	10	0	0.355–0.746	<i>Valid</i>

Table 2 presents the results of the instrument validity test, indicating that most of the questionnaire items met the predetermined validity criteria (r-table = 0.334, $p < 0.05$). Of the ten items originally developed to measure ecological anxiety, seven were retained as valid, while three items (EAn7, EAn9, and EAn10) were excluded due to correlation coefficients below the critical value and insignificant p-values. In contrast, all ten items measuring green self-identity (GSI) and sustainable consumption behavior (SCB) demonstrated satisfactory construct validity, with Pearson correlation coefficients ranging from 0.378 to 0.753 and 0.355 to 0.746, respectively. These findings indicate that the retained items adequately represent the theoretical constructs. The elimination of three ecological anxiety items indicates that these indicators do not optimally represent the construct in the student context. In contrast, the retained items demonstrated adequate construct validity, making the instrument suitable for use in reliability testing, classical assumption testing, and multiple linear regression analysis.

After validity testing, the reliability of the research instrument was evaluated using Cronbach's Alpha to determine the internal consistency of the questionnaire items. Reliability analysis was conducted based on responses from 35 participants involved in the pilot study. All pilot data was successfully processed, with no excluded cases,

indicating the dataset was suitable for reliability analysis as shown in the following table.

Table 3. Results of Instrument Validity Test

Indicator	Value
<i>Valid Cases</i>	35
<i>Excluded Cases</i>	0
<i>Number of Questionnaire Items</i>	30
<i>Cronbach's Alpha</i>	0.878

The reliability analysis yielded a Cronbach's Alpha coefficient of 0.878, indicating high internal consistency of the instrument. Therefore, the questionnaire was deemed reliable in measuring the constructs of ecological anxiety, green self-identity, and sustainable consumption behavior. Supported by adequate validity test results, the instrument met the psychometric requirements for use in the main survey involving 185 respondents. Therefore, the instrument is suitable for use as a basis for further statistical analysis, including classical assumption testing and multiple linear regression.

Before conducting multiple linear regression analysis, the model was first tested using classical assumption tests to ensure that Ordinary Least Squares (OLS) assumptions were met. These tests included normality (Kolmogorov–Smirnov), multicollinearity (Tolerance and VIF), and heteroscedasticity (Glejser) tests, as shown in following table.

Table 4. Results of Classical Assumption Tests

Test	Indicator	Criterion	Result
<i>Normality</i>	<i>Kolmogorov–Smirnov (Asymp. Sig.)</i>	> 0.05	0.100
<i>Multicollinearity</i>	<i>Tolerance / VIF</i>	$> 0.10 / < 10.00$	0.852 / 1.173
<i>Heteroscedasticity</i>	<i>Glejser Sig. (Eco-anxiety/Green Self-Identity)</i>	> 0.05	0.901 / 0.244

Prior to hypothesis testing, classical assumption testing was conducted to verify the suitability of the multiple linear regression model. As shown in Table 4, the Kolmogorov–Smirnov test indicated normally distributed residuals (Asymp. Sig. = $0.100 > 0.05$). The multicollinearity test revealed a tolerance value of 0.852 and a VIF value of 1.173 for both independent variables, confirming the absence of multicollinearity. Furthermore, the Glejser test yielded a significance value of 0.901 for ecological anxiety and 0.244 for green self-identity, indicating no evidence of heteroscedasticity. Collectively, these results indicate that all assumptions of the Ordinary Least Squares (OLS) regression model are met, confirming that the regression model is statistically appropriate and provides a reliable basis for testing the proposed hypotheses regarding the influence of ecological anxiety and green self-identity on sustainable consumption behavior among Generation Z students.

Multiple linear regression analysis was conducted to examine the partial effects of ecological anxiety and green self-identity on sustainable consumption behavior among Generation Z vocational high school students. The estimated regression model is

expressed as $Y=18.220+0.164X_1+0.424X_2$. Aspect Y represents sustainable consumption behavior, X_1 represents ecological anxiety, and X_2 represents green self-identity. The regression equation shows that both independent variables have positive regression coefficients, indicating that an increase in ecological anxiety and green self-identity is associated with an increase in sustainable consumption behavior, assuming other variables remain constant. Specifically, each one-unit increase in ecological anxiety is predicted to increase sustainable consumption behavior by 0.164 units, while each one-unit increase in green self-identity is predicted to increase sustainable consumption behavior by 0.424 units. Further explanation is given in the following table.

Table 5. Multiple Linear Regression Coefficients

Predictor	B	Standardized Beta	t	Sig.
Constant	18.220	—	6.428	0.000
Eco-anxiety	0.164	0.127	1.815	0.071
Green Self-Identity	0.424	0.425	6.063	0.000

As presented in Table 5, ecological anxiety showed a positive regression coefficient ($B = 0.164$), indicating a positive relationship with sustainable consumption behavior. However, this relationship was not statistically significant ($t = 1.815$, $p = 0.071 > 0.05$), leading to the rejection of H_1 and acceptance of H_{01} . This suggests that environmental anxiety alone is insufficient to predict students' sustainable consumption behavior. Research by Gao et al. (2021) suggests that the influence of environmental anxiety is not always the same on all types of pro-environmental behavior, with its boundaries and internal mechanisms still unclear. Jones & Todd (2023) found that patterns of ecological anxiety experienced by individuals do not always lead to adaptive behavior due to the influence of various factors within the individual. Existing ecological anxiety tends to be an individual's emotional response to environmental issues rather than a stable psychological disposition that directly influences behavioral decisions. Therefore, this form of worry may not be accompanied by the motivation, self-confidence, or personal commitment necessary to adopt sustainable consumption practices.

Partial test results indicate that ecological anxiety alone is not sufficient to explain sustainable consumption behavior. Díaz et al. (Díaz et al., 2020) explain that environmentally responsible behavior is the result of the interaction of cognitive, affective, and motivational factors, so individuals require psychological resources, such as environmental identity and values, to translate concern into consistent behavior. Nguyen et al. (2024) also show that psychological factors contribute to sustainable consumption behavior. Conversely, Innocenti et al. (2023) found that excessive environmental anxiety can trigger feelings of helplessness and psychological exhaustion, thus inhibiting pro-environmental actions. These findings indicate that increased anxiety about the environmental crisis needs to be balanced with strengthening positive psychological resources so that environmental awareness can be translated into sustainable consumption behavior.

In contrast to ecological anxiety, green self-identity was found to have a positive and statistically significant influence on sustainable consumption behavior ($B = 0.424$, $t = 6.063$, $p < 0.001$), supporting H_2 and rejecting H_{302} . Furthermore, it can be simply described that students who consider environmental responsibility an integral part of

their personal identity are more likely to engage in sustainable consumption practices. Various studies have confirmed findings showing that identity is related to environmentally friendly behavior (Udall et al., 2021). Research by Abbas & Bashir (2020) found that environmentally friendly self-identity acts as a full mediator in the relationship between internalization and sustainable consumption behavior. Thus, Sharma et al. (2020) confirmed that the more strongly someone defines themselves as an environmentally friendly individual, the greater their tendency to make environmentally friendly purchases.

These findings suggest that self-identity acts as an internal mechanism that directs individuals to act in alignment with their self-perceptions. Kumar et al. (2023) explain that decisions to purchase green products are not solely based on ecological benefits but also reflect an individual's identity as an environmentally conscious individual. Similarly, Giménez et al. (Giménez et al., 2021) show that individuals with a strong environmental identity tend to reduce consumption, reuse products, and avoid unnecessary purchases. In this study, green self-identity was the strongest predictor of sustainable consumption behavior ($\beta = 0.425$), with a greater influence than ecological anxiety ($\beta = 0.127$). However, differences in findings between studies are possible due to variations in respondent characteristics, cultural and educational contexts, and green self-identity measurement instruments.

Overall, partial regression analysis indicates that these two psychological variables contribute differently to sustainable consumption behavior. Although ecological anxiety alone is insufficient to predict sustainable consumption behavior, green self-identity emerged as a significant determinant. These findings suggest that sustainable consumption behavior among Generation Z students may be less dependent on emotional responses to environmental issues and more on the internalization of environmental values into one's personal identity. To gain a more comprehensive understanding of the combined influence of these two variables, the simultaneous effects of ecological anxiety and green self-identity were further examined through F-tests and coefficient of determination analyses in Tables 6 and 7.

Table 6. Results of Simultaneous Regression Analysis

Model	F	Sig.
Regression Model	28.459	0.000

As presented in Table 6, the regression model yielded an F-value of 28.459 with a significance level of 0.000, which is lower than the predetermined significance level of 0.05. Furthermore, the calculated F-value exceeded the critical F-value ($28.459 > 3.046$). This finding indicates that the regression model is statistically significant, indicating that ecological anxiety and green self-identity simultaneously influence sustainable consumption behavior among Generation Z students. Therefore, the third research hypothesis (H3), which states that ecological anxiety and green self-identity simultaneously influence sustainable consumption behavior, is accepted, while the null hypothesis (H3) is rejected. This finding supports research by Elhoushy & Lanzini (2021), which suggests that sustainable consumption behavior is not determined by a single psychological factor but rather arises from the interaction of several psychological dimensions related to environmental concern and environmental identity.

The overall significance of the model is significant because ecological anxiety did not show a significant partial effect in the previous analysis. This suggests that, although environmental anxiety alone may not directly predict sustainable consumption behavior, its coexistence with green self-identity contributes to the explanatory capacity of the regression model. One possible interpretation is that environmental anxiety serves as an emotional background factor, while green self-identity serves as the primary motivational mechanism that translates environmental awareness into actual consumption behavior. This interpretation is consistent with theoretical perspectives emphasizing that sustainable consumption behavior is influenced by affective and identity based processes. To assess the explanatory power of the regression model, the coefficient of determination was then analyzed.

Table 7. Model Summary

R	R²	Adjusted R²	Std. Error of the Estimate
0.488	0.238	0.230	3.02594

The coefficient of determination analysis showed that the regression model explained 23.0% of the variance in sustainable consumption behavior, as reflected in the adjusted coefficient of determination (Adjusted R² = 0.230). This finding indicates that ecological anxiety and green self-identity collectively make a meaningful contribution in predicting sustainable consumption behavior among Generation Z vocational high school students. However, approximately 77.0% of the variance in sustainable consumption behavior remains unexplained by the current model, suggesting that additional factors beyond the scope of this study also contribute to students' sustainable consumption practices. This finding suggests that sustainable consumption behavior among Generation Z students is a multidimensional phenomenon that is also influenced by other factors, such as environmental knowledge, social norms, family influence, economic considerations, peer behavior, and perceived behavioral control. Fostering a strong green self-identity through learning, experiences, environmental projects, and educational activities that encourage students to view environmental responsibility as part of their personal identity is needed. Overall, the simultaneous significance of the regression model and moderate explanatory power reflected in the coefficient of determination indicate that ecological anxiety and green self-identity together are important psychological predictors of sustainable consumption behavior among Generation Z students to promote sustainable consumption practices and contribute to the achievement of Sustainable Development Goals related to quality education, responsible consumption, and climate action.

CONCLUSION

This study concluded that green self-identity is a more influential psychological determinant of sustainable consumption behavior than ecological anxiety among Generation Z students. Although ecological anxiety alone is not sufficient to predict sustainable consumption behavior, the combination of the two variables significantly explains students' sustainable consumption behavior. The model explains approximately 23% of the variance in sustainable consumption behavior, suggesting that additional psychological and contextual factors need to be explored in future studies. These findings highlight the importance of cultivating environmental identity through



sustainability education as a strategy to encourage environmentally responsible consumption.

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