

The Influence of Sustainability Consciousness, Environmental Knowledge, and Green Purchase Intention on Marine Environmentally Friendly Behavior in Gen Z with Self Efficacy as a Mediator

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ABSTRAK

Polusi plastik laut tetap menjadi salah satu tantangan lingkungan yang paling mendesak, membutuhkan partisipasi publik yang lebih besar dalam konservasi laut, terutama di kalangan Generasi Z. Meskipun penelitian sebelumnya telah meneliti pengaruh kesadaran keberlanjutan, pengetahuan lingkungan, dan niat pembelian hijau pada perilaku pro-lingkungan, penelitian terbatas telah secara khusus menyelidiki perilaku ramah lingkungan laut sekaligus memeriksa peran mediasi efikasi diri. Oleh karena itu, penelitian ini bertujuan untuk menganalisis pengaruh kesadaran keberlanjutan, pengetahuan lingkungan, dan niat pembelian hijau terhadap perilaku ramah lingkungan laut di kalangan Generasi Z, dengan efikasi diri sebagai variabel mediasi. Survei kuantitatif dilakukan dengan melibatkan 194 responden Generasi Z, dan data dianalisis menggunakan Partial Least Squares Structural Equation Modeling (PLS-SEM). Temuan ini mengungkapkan bahwa kesadaran keberlanjutan, pengetahuan lingkungan, dan niat pembelian hijau memiliki efek langsung positif yang signifikan terhadap perilaku ramah lingkungan laut. Namun, efikasi diri tidak secara signifikan memediasi hubungan ini. Temuan ini menunjukkan bahwa faktor kognitif dan sikap memainkan peran yang lebih penting daripada efikasi diri dalam mempromosikan perilaku ramah lingkungan laut di antara Generasi Z. Studi ini berkontribusi pada literatur yang berkembang tentang perilaku pro-lingkungan dengan memberikan bukti empiris tentang peran mediasi efikasi diri yang terbatas dalam konteks konservasi lingkungan laut dan menawarkan wawasan praktis untuk merancang program pendidikan lingkungan dan intervensi perilaku yang menargetkan kaum muda.

Kata kunci: Environmental Knowledge, Green Purchase Intention, Perilaku Ramah Lingkungan Laut, Self-Efficacy, Sustainability Consciousness

ABSTRACT

Marine plastic pollution remains one of the most pressing environmental challenges, requiring greater public participation in marine conservation, particularly among Generation Z. Although previous studies have examined the influence of sustainability consciousness, environmental knowledge, and green purchase intention on pro-environmental behavior, limited research has specifically investigated marine environmentally friendly behavior while simultaneously examining the mediating role of self-efficacy. Therefore, this study aims to analyze the influence of sustainability consciousness, environmental knowledge, and green purchase intention on marine environmentally friendly behavior among Generation Z, with self-efficacy as a mediating variable. A quantitative survey was conducted involving 194 Generation Z respondents, and the data was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings reveal that sustainability consciousness, environmental knowledge, and green purchase intention have significant positive direct effects on marine environmentally friendly behavior. However, self-efficacy does not significantly mediate these relationships. These findings suggest that cognitive and attitudinal factors play a more important role than self-efficacy in promoting marine environmentally friendly behavior among Generation Z. This study contributes to the growing literature on pro-environmental behavior by providing empirical evidence on the limited mediating role of self-efficacy in the context of marine environmental conservation and offers practical insights for designing environmental education and behavioral intervention programs targeting young people.

Keywords: Environmental Knowledge, Green Purchase Intention, Marine Environmentally Friendly Behavior, Self-Efficacy, Sustainability Consciousness

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1. INTRODUCTION

Marine plastic pollution, particularly from single-use plastics, has become one of the most pressing environmental challenges worldwide and poses a serious threat to sustainable development. Despite various government policies and public awareness campaigns, plastic waste generation continues to increase, with a substantial proportion eventually entering marine ecosystems. This problem not only accelerates the degradation of marine biodiversity but also threatens coastal economies, fisheries, tourism, and human health through contamination of the food chain. As one of Indonesia's largest coastal cities and economic centers, Surabaya represents an important context for understanding how individual behavior can contribute to reducing marine plastic pollution.

Achieving Sustainable Development Goal (SDG) 14 (Life Below Water) requires not only technological and regulatory interventions but also active public participation in environmentally responsible behavior. In this regard, psychological and behavioral factors play an essential role in encouraging individuals to adopt sustainable lifestyles. Previous studies have identified sustainability consciousness, environmental knowledge, green purchase intention, and self-efficacy as important determinants of pro-environmental behavior. Individuals who possess greater awareness of environmental sustainability, better environmental knowledge, stronger intentions to purchase environmentally friendly products, and higher confidence in their own abilities are generally more likely to engage in environmentally responsible actions.

The urgency of this issue is particularly evident in Indonesia. According to the Ministry of Environment and Forestry (KLHK), plastic accounts for approximately 35.4% of marine waste found in Indonesian waters, while around 80% of marine debris originates from land-based activities. As one of the world's largest contributors to marine plastic pollution, Indonesia faces significant environmental, economic, and social consequences if behavioral changes are not effectively promoted. These conditions highlight the importance of understanding the psychological factors that encourage environmentally friendly behavior, especially among Generation Z, who are expected to become future agents of sustainable development.

Several previous studies have demonstrated that sustainability consciousness, environmental knowledge, and green purchase intention positively influence various forms of pro-environmental behavior. Hudayah et al. (2023) reported that perceived green value and environmental concern significantly influence green product purchase intention among Generation Z. Simatupang and Lembana (2022) found that green product awareness, environmental concern, and green community practices contribute directly to green purchasing behavior through purchase intention. Likewise,

Ramadani et al. (2022) showed that environmental knowledge positively affects attitudes and intentions toward purchasing environmentally friendly products. Meanwhile, Alamsyah and Artanti (2021) suggested that although environmental knowledge influences green purchasing attitudes and intentions, its effect is not always translated into actual behavior, indicating the potential importance of psychological mechanisms such as self-efficacy.

Although previous studies have confirmed the importance of sustainability consciousness, environmental knowledge, and green purchase intention in promoting pro-environmental behavior, several research gaps remain. Most existing studies have primarily focused on general pro-environmental behavior or green purchasing behavior, whereas empirical evidence regarding marine environmentally friendly behavior remains relatively limited. Furthermore, previous research has generally examined direct relationships among these variables, with limited attention given to the psychological mechanisms through which environmental awareness and knowledge are translated into actual marine conservation behavior. In particular, empirical evidence regarding the mediating role of self-efficacy among Generation Z in the Indonesian context remains scarce.

The mediating role of self-efficacy in this study is grounded in Social Cognitive Theory, which argues that individuals are more likely to perform a particular behavior when they believe they possess the capability to successfully perform that behavior. Sustainability consciousness and environmental knowledge may increase individuals' understanding of environmental problems, while green purchase intention reflects their willingness to support environmentally friendly consumption. However, these cognitive and motivational factors may only be translated into actual environmentally friendly behavior when individuals have sufficient confidence in their own ability to act. Therefore, self-efficacy is theoretically expected to function as an important psychological mechanism linking environmental awareness, knowledge, and behavioral intention with marine environmentally friendly behavior.

Based on these research gaps and theoretical considerations, this study aims to examine the effects of sustainability consciousness, environmental knowledge, and green purchase intention on marine environmentally friendly behavior among Generation Z, while simultaneously investigating the mediating role of self-efficacy. By integrating these variables into a single structural model, this study contributes to the literature on pro-environmental behavior by extending the application of Social Cognitive Theory within the context of marine environmental conservation. The findings are expected to provide both theoretical insights into the psychological determinants of marine environmentally friendly behavior and practical recommendations for

policymakers, educational institutions, and environmental organizations in designing more effective environmental education and behavioral intervention programs for Generation Z.

2. RESEARCH METHODS

2.1. Research Design and Data Collection

This study employed a quantitative research design using a cross-sectional survey to examine the relationships among sustainability consciousness, environmental knowledge, green purchase intention, self-efficacy, and marine environmentally friendly behavior. Primary data were collected through an online questionnaire distributed via Google Forms using social media platforms, including Instagram, X (formerly Twitter), and WhatsApp, to reach Generation Z respondents.

A purposive sampling technique was employed because the study specifically targeted individuals who met predetermined criteria relevant to the research objectives (Memon et al., 2025). Respondents were required to (1) belong to Generation Z, (2) be between 17 and 25 years old, and (3) voluntarily complete the questionnaire. To improve data quality, screening questions were included at the beginning of the questionnaire to verify respondents' eligibility before they proceeded to the main survey.

A total of 194 valid responses were obtained. This sample size is considered adequate for Partial Least Squares Structural Equation Modeling (PLS-SEM). Following the ten-times rule proposed by Hair et al. (2022), the minimum sample size should be at least ten times the maximum number of structural paths directed at a single endogenous construct. Since the largest number of structural paths pointing to one endogenous construct in this study was four, the minimum required sample size was 40 respondents. Therefore, the final sample of 194 respondents substantially exceeded this recommendation and was considered sufficient for reliable model estimation.

2.2. Measurement Instrument

The research instrument was developed by adapting measurement indicators from previously validated studies. All questionnaire items were measured using a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). A four-point Likert scale was intentionally selected to eliminate neutral responses and encourage respondents to express a clearer level of agreement or disagreement, thereby reducing central tendency bias and improving response discrimination. The measurement indicators for sustainability consciousness, environmental knowledge, green purchase intention, self-efficacy, and marine environmentally friendly behavior were adapted from relevant studies and modified to suit the context of marine environmental conservation among Generation Z.

2.3. Data Analysis

The collected data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. PLS-SEM was selected because this study aimed to examine a relatively complex structural model involving multiple latent constructs and mediating effects while emphasizing prediction rather than theory confirmation. In addition, PLS-SEM is considered appropriate for studies with moderate sample sizes and does not require strict multivariate normality assumptions.

The analysis consisted of two stages. First, the measurement model was evaluated by assessing indicator reliability, convergent validity, discriminant validity, Average Variance Extracted (AVE), Composite Reliability (CR), and Cronbach's Alpha to ensure the validity and reliability of the measurement instrument. Second, the structural model was evaluated by examining the coefficient of determination (R^2), collinearity using the Variance Inflation Factor (VIF), model fit indices, and bootstrapping procedures to estimate path coefficients and test the proposed hypotheses. Given the exploratory and prediction-oriented nature of this study, statistical significance was evaluated at the 10% significance level ($\alpha = 0.10$), corresponding to a critical t -value of 1.65 for one-tailed hypothesis testing. This threshold is considered acceptable in exploratory PLS-SEM studies that emphasize prediction and theory development rather than strict theory confirmation (Hair et al., 2022). Nevertheless, the interpretation of the results considered not only statistical significance but also the magnitude and theoretical relevance of the observed relationships. The proposed research model is presented in Figure 1.

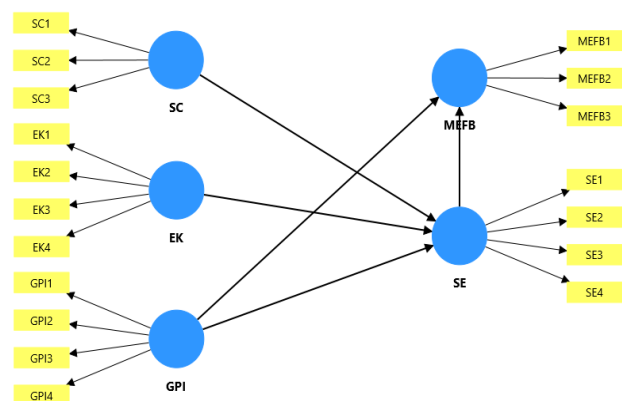


Figure 1. Research Model

Figure 1 presents the proposed conceptual framework of this study. Based on the theoretical foundation of Social Cognitive Theory and previous empirical findings, sustainability consciousness, environmental knowledge, and green purchase intention are expected to directly influence marine environmentally friendly behavior. In addition, self-efficacy is proposed to act as a mediating variable that strengthens the relationships between these antecedent variables and marine environmentally

friendly behavior. Accordingly, the following hypotheses are proposed:

- H1 : Sustainability consciousness positively influences marine environmentally friendly behavior (MEFB).
- H2 : Sustainability consciousness positively influences self-efficacy (SE).
- H3 : Self-efficacy mediates the relationship between sustainability consciousness and marine environmentally friendly behavior (MEFB).
- H4 : Environmental knowledge positively influences marine environmentally friendly behavior (MEFB).
- H5 : Environmental knowledge positively influences self-efficacy (SE).
- H6 : Self-efficacy mediates the relationship between environmental knowledge and marine environmentally friendly behavior (MEFB).
- H7 : Green purchase intention positively influences marine environmentally friendly behavior (MEFB).
- H8 : Green purchase intention positively influences self-efficacy (SE).
- H9 : Self-efficacy mediates the relationship between green purchase intention and marine environmentally friendly behavior (MEFB).
- H10 : Self-efficacy positively influences marine environmentally friendly behavior (MEFB).

3. RESULTS DAN DISCUSSION

3.1. Respondent Profile

A total of 194 valid responses were included in the analysis. As presented in Table 1, most respondents were female (86.6%), while male respondents accounted for 13.4% of the sample. The majority of respondents were between 20 and 22 years old, with 21-year-old participants representing the largest proportion (31.96%), followed by respondents aged 20 years (24.74%) and 22 years (22.68%). These findings indicate that the sample was dominated by female Generation Z individuals in their early twenties.

Table 1. Respondent Profil

Respondent Profile		Frequency	Percentage
Gender	Male	26	13.4%
	Female	168	86.6%
Age (Years)	17	1	0.52%
	18	13	6.70%
	19	14	7.22%
	20	48	24.74%
	21	62	31.96%
	22	44	22.68%
	23	7	3.61%
	24	4	2.06%
	26	1	0.52%
Total		194	100%

Source: Primary data processed, 2025

3.2. Measurement Model Evaluation

3.2.1. Indicator Reliability

The measurement model was first evaluated by examining the outer loading values of each indicator. Figure 2 presents the initial measurement model. The initial assessment identified one indicator (GPI3) with an outer loading below the recommended threshold of 0.50. Therefore, following the recommendation of Hair et al. (2022), this indicator was removed from the model.

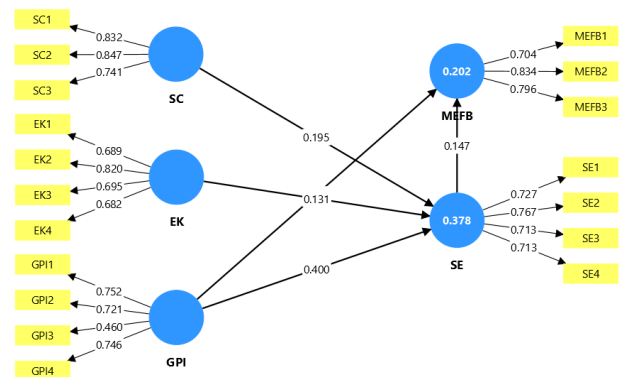


Figure 2. Initial Measurement Model

After removing GPI3, all remaining indicators exhibited outer loading values above the recommended threshold, indicating satisfactory indicator reliability.

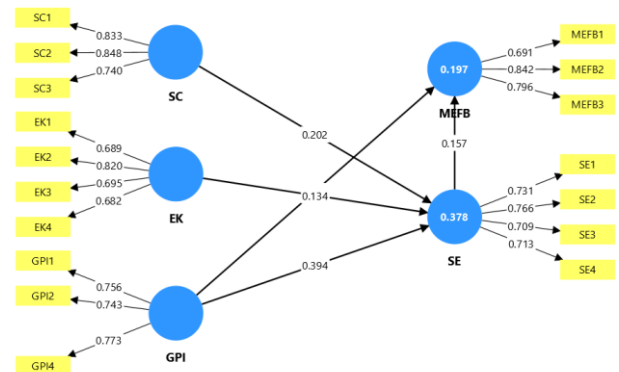


Figure 3. Revised Measurement Model

3.2.2. Convergent Validity and Reliability

Convergent validity and internal consistency reliability were evaluated using Average Variance Extracted (AVE), Composite Reliability (CR), and Cronbach's Alpha.

Table 2. Average Variance Extracted (AVE)

	AVE
EK	0.527
GPI	0.573
MEFB	0.608
SC	0.672
SE	0.533

Source: Primary data processed, 2025

As shown in Table 2, all constructs achieved AVE values above the recommended threshold of 0.50, indicating satisfactory convergent validity.

Table 3. Composite Reliability and Cronbach's Alpha

	Cronbach's alpha	Composite reliability
EK	0.700	0.816
GPI	0.634	0.801
MEFB	0.683	0.823
SC	0.740	0.857
SE	0.711	0.820

Source: Primary data processed, 2025

Table 5 shows that Composite Reliability values exceeded 0.80 for all constructs, while Cronbach's Alpha values were above the acceptable threshold of 0.60. These findings indicate satisfactory internal consistency reliability.

3.2.3. Discriminant Validity

Discriminant validity was evaluated using the Fornell-Larcker criterion and the Heterotrait-Monotrait Ratio (HTMT).

Table 4. Fornell-Larcker Criterion Value

	EK	GPI	MEFB	SC	SE
EK	0.726				
GPI	0.484	0.757			
MEFB	0.571	0.418	0.780		
SC	0.572	0.490	0.474	0.820	
SE	0.432	0.564	0.341	0.453	0.730

Source: Primary data processed, 2025

As presented in Table 4, the square root of the AVE for each construct exceeded its correlations with other constructs, confirming adequate discriminant validity.

Table 5. Heterotrait-Monotrait Ratio (HTMT)

	EK	GPI	MEFB	SC	SE
EK					
GPI	0.712				
MEFB	0.805	0.599			
SC	0.783	0.722	0.640		
SE	0.591	0.808	0.476	0.631	

Source: Primary data processed, 2025

Furthermore, all HTMT values were below the recommended threshold of 0.90 (Table 5), providing additional evidence that the constructs were empirically distinct.

Overall, the results demonstrate that the measurement model satisfied the recommended validity and reliability criteria and was therefore suitable for structural model evaluation.

3.3. Structural Model Assessment

The structural model was evaluated through the coefficient of determination (R^2), collinearity assessment, and model fit evaluation.

Table 6. R-Square

	R-square
MEFB	0.372
SE	0.370

Source: Primary data processed, 2025

As presented in Table 6, the R^2 values for MEFB (0.372) and SE (0.370) indicate moderate explanatory power, suggesting that approximately 37% of the variance in both endogenous constructs can be explained by the proposed model.

Table 7. Collinearity Statistics (VIF)

Variabel	VIF
EK1	1.403
EK2	1.498
EK3	1.262
EK4	1.304
GPI1	1.362
GPI2	1.272
GPI4	1.183
MEFB1	1.303
MEFB2	1.382
MEFB3	1.312
SC1	3.309
SC2	3.352
SC3	1.121
SE1	1.304
SE2	1.341
SE3	1.417
SE4	1.352

Source: Primary data processed, 2025

Table 7 shows that all VIF values were below the recommended threshold of 5.0, indicating that multicollinearity was not a concern in the structural model.

Table 8. Fit Model

	Saturated model	Estimated model
SRMR	0.091	0.091
d_uls	1.402	1.402
d_g	0.389	0.389
Chi-square	427.953	427.953
NFI	0.652	0.652

Source: Primary data processed, 2025

Model fit was subsequently evaluated using SRMR, d_uls, d_g, Chi-square, NFI, and GoF. As shown in Table 8, the SRMR value (0.091) was within the acceptable range for exploratory PLS-SEM studies. Although the NFI value (0.652) did not reach the conventional threshold of 0.90, it remains acceptable for exploratory and prediction-oriented research. Furthermore, the calculated GoF value of 0.465 indicates a high level of overall model fit, supporting the adequacy of the proposed structural model for hypothesis testing.

Table 9. Hypothesis Testing

Research Hypothesis	Variable	T statistics	P values	Result
H1	SC -> MEFB	1.868	0.062	Significant
H2	SC -> SE	2.070	0.039	Significant
H3	SC -> SE -> MEFB	0.231	0.817	Not Significant
H4	EK -> MEFB	5.033	0.000	Significant
H5	EK -> SE	1.834	0.067	Significant
H6	EK -> SE -> MEFB	0.219	0.827	Not Significant
H7	GPI -> MEFB	1.814	0.070	Significant
H8	GPI -> SE	5.577	0.000	Significant
H9	GPI -> SE -> MEFB	0.251	0.802	Not Significant
H10	SE -> MEFB	0.261	0.794	Not Significant

Source: Primary data processed, 2025

3.4. Hypothesis Testing

The hypothesis testing results are presented in Table 9. Six of the ten proposed hypotheses (H1, H2, H4, H5, H7, and H8) were supported, whereas four hypotheses (H3, H6, H9, and H10) were not supported. Sustainability consciousness, environmental knowledge, and green purchase intention showed significant positive direct effects on marine environmentally friendly behavior and self-efficacy. However, self-efficacy did not significantly influence marine environmentally friendly behavior, resulting in non-significant indirect effects for all three mediation hypotheses.

4. DISCUSSION

4.1. Direct Effects of Sustainability Consciousness, Environmental Knowledge, and Green Purchase Intention

The findings demonstrate that sustainability consciousness, environmental knowledge, and green purchase intention each have a significant positive effect on marine environmentally friendly behavior (Table 9). These results indicate that Generation Z individuals who possess stronger sustainability awareness, better environmental knowledge, and greater intention to purchase environmentally friendly products are more likely to engage in behaviors that contribute to marine environmental conservation. This finding supports the notion that pro-environmental behavior is shaped by a combination of cognitive, motivational, and behavioral intention factors rather than by a single psychological determinant.

Among the three predictors, environmental knowledge exhibited the strongest direct influence on marine environmentally friendly behavior. This finding suggests that individuals with greater knowledge regarding environmental degradation, marine pollution, and the impacts of single-use plastics are better able to recognize the environmental consequences of their consumption decisions and are therefore more willing to adopt environmentally responsible behaviors. This result is consistent with Hamiyati et al. (2020), who argued that environmental knowledge serves as an important foundation for encouraging responsible environmental behavior, and with Fitri and Simanjuntak (2022), who found that individuals with

higher environmental knowledge tend to demonstrate greater environmental responsibility.

Sustainability consciousness also showed a significant positive relationship with marine environmentally friendly behavior. Individuals who are more aware of sustainability issues generally consider the long-term consequences of their actions and are therefore more likely to adopt environmentally responsible lifestyles, including reducing the use of single-use plastics. This finding is in line with previous studies conducted by Qazi et al. (2020), Islam et al. (2024), and Eraslan et al. (2024), which demonstrated that sustainability consciousness encourages individuals to integrate environmental considerations into their daily decision-making processes and ultimately promotes pro-environmental behavior.

Similarly, green purchase intention significantly influenced marine environmentally friendly behavior. This finding supports the Theory of Planned Behavior (Ajzen, 1991), which proposes that behavioral intention is one of the strongest predictors of actual behavior. Individuals who intend to purchase environmentally friendly products are more likely to extend these intentions into broader environmentally responsible actions, including reducing plastic consumption and supporting marine ecosystem conservation. This result is also consistent with the findings of Patiño-Toro et al. (2024), who reported that green purchase intention contributes significantly to sustainable consumption behavior.

Overall, these findings highlight that improving environmental knowledge, strengthening sustainability consciousness, and encouraging green purchase intention may simultaneously promote marine environmentally friendly behavior among Generation Z. Therefore, behavioral change strategies should not rely solely on increasing environmental awareness but should also foster sustainable consumption intentions that can be translated into everyday environmental practices.

4.2. The Mediating Role of Self-Efficacy

The present study found that sustainability consciousness, environmental knowledge, and green purchase intention significantly increased self-efficacy (Table 9). These findings indicate that individuals with greater environmental awareness, stronger environmental knowledge, and higher green

purchase intention generally possess stronger confidence in their ability to perform environmentally responsible behaviors. This result is consistent with previous studies by Yoong et al. (2018), Afifah et al. (2022), and Latif and Ishak (2022), which suggested that environmental awareness and knowledge positively contribute to the development of environmental self-efficacy.

However, contrary to the proposed hypotheses, self-efficacy did not significantly influence marine environmentally friendly behavior, resulting in non-significant indirect effects for all three mediation hypotheses (H3, H6, and H9). These findings suggest that although respondents believed they were capable of engaging in environmentally friendly actions, such confidence alone was insufficient to encourage actual marine environmentally friendly behavior.

One possible explanation is that marine environmentally friendly behavior depends not only on individual confidence but also on external contextual factors. According to Bandura (1997), self-efficacy affects behavior when individuals possess both confidence and sufficient opportunities to perform the intended action. In the context of reducing single-use plastics, environmentally responsible behavior may be constrained by limited availability of environmentally friendly products, inadequate recycling infrastructure, economic considerations, and prevailing social norms. Consequently, individuals may possess high self-efficacy but still encounter practical barriers that prevent them from consistently performing environmentally friendly behaviors.

Another explanation relates to the well-established attitude-behavior gap in environmental psychology. Kollmuss and Agyeman (2002) argued that positive environmental attitudes and beliefs frequently fail to translate into actual behavior because daily habits, convenience, economic costs, and social influences often outweigh environmental motivation. This phenomenon appears particularly relevant among Generation Z, who generally demonstrate high environmental awareness but continue to face practical challenges in implementing environmentally sustainable lifestyles.

The findings are also consistent with Qin et al. (2024), who reported that self-efficacy did not significantly mediate the relationship between future-self continuity and pro-environmental behavior. Likewise, Gan et al. (2025) concluded that self-efficacy contributes to environmental intention but does not consistently function as a strong mediating mechanism across different environmental contexts. These studies, together with the present findings, suggest that self-efficacy should not be assumed to serve as a universal mediator in explaining environmentally friendly behavior.

From a theoretical perspective, this study contributes to the literature by demonstrating that the mechanism underlying marine environmentally friendly behavior among Generation Z may extend

beyond individual efficacy beliefs. While self-efficacy remains an important psychological resource, environmental behavior appears to be more strongly influenced by direct cognitive factors such as environmental knowledge and sustainability consciousness. This finding suggests that future behavioral models should incorporate broader contextual variables, including subjective norms, perceived behavioral control, environmental concern, policy support, and environmental infrastructure, to better explain environmentally friendly behavior.

4.3. Practical Implications

The findings of this study provide several practical implications for policymakers, educational institutions, and organizations involved in marine environmental conservation. First, environmental education programs should prioritize strengthening environmental knowledge and sustainability consciousness, as these variables demonstrated significant direct effects on marine environmentally friendly behavior. Educational initiatives should therefore focus not only on increasing awareness of environmental issues but also on providing practical knowledge regarding sustainable consumption and waste reduction.

Second, public campaigns should encourage green purchasing behavior by improving public access to environmentally friendly products and promoting sustainable consumption lifestyles. Financial incentives, eco-labeling programs, and public awareness campaigns may help strengthen consumers' intentions to choose environmentally friendly products, which may subsequently encourage broader pro-environmental behavior.

Finally, the insignificant mediating role of self-efficacy indicates that interventions aimed solely at increasing individual confidence are unlikely to produce substantial behavioral change. Instead, environmental policies should combine psychological interventions with structural support, such as expanding recycling facilities, reducing the availability of single-use plastics, improving access to environmentally friendly alternatives, and strengthening social norms that support environmental responsibility. Such integrated interventions are expected to produce more sustainable behavioral changes among Generation Z and contribute more effectively to achieving Sustainable Development Goal 14 concerning marine ecosystem conservation.

5. CONCLUSION

This study examined the effects of sustainability consciousness, environmental knowledge, and green purchase intention on marine environmentally friendly behavior among Generation Z, with self-efficacy as a mediating variable. The findings reveal that sustainability consciousness, environmental knowledge, and green purchase intention significantly and positively influence marine environmentally

Kurniawan, A., Azizah, N., Putri, S. R., Setyawan, M. D. B., dan Mardianto, M. F. F. (2026). The Influence of Sustainability Consciousness, Environmental Knowledge, and Green Purchase Intention on Marine Environmentally Friendly Behavior in Gen Z with Self Efficacy as a Mediator. *Jurnal Ilmu Lingkungan*, 24(3), 542-550, doi:10.14710/jil.24.3.542-550

friendly behavior. In contrast, self-efficacy did not significantly affect marine environmentally friendly behavior and therefore failed to mediate the relationships between the three antecedent variables and marine environmentally friendly behavior. These findings suggest that cognitive and motivational factors play a more prominent role in encouraging environmentally responsible behavior than self-efficacy alone.

From a theoretical perspective, this study extends the literature on pro-environmental behavior by demonstrating that self-efficacy may not function as a universal mediating mechanism in the context of marine environmental behavior among Generation Z. Instead, environmental knowledge, sustainability consciousness, and green purchase intention appear to exert stronger direct influences on environmentally friendly behavior. These findings highlight the importance of considering contextual and behavioral factors alongside individual psychological characteristics when explaining pro-environmental behavior.

Practically, the findings imply that policymakers, educational institutions, and environmental organizations should prioritize environmental education, sustainability awareness programs, and initiatives that encourage green purchasing behavior. In addition to strengthening individual awareness, environmental interventions should also provide structural support through accessible environmentally friendly products, improved waste management facilities, and policies that facilitate sustainable behavioral practices.

This study has several limitations. First, the use of a cross-sectional design limits the ability to establish causal relationships among the variables. Second, the data were collected through self-reported online questionnaires, which may be subject to response bias and self-selection bias. Third, the respondent profile was dominated by female participants, which may limit the generalizability of the findings to the broader Generation Z population.

Future research is recommended to employ longitudinal or experimental designs to better capture changes in environmentally friendly behavior over time. In addition, future studies should consider incorporating other explanatory variables, such as subjective norms, perceived behavioral control, environmental concern, or policy support, to provide a more comprehensive understanding of the psychological and contextual factors influencing marine environmentally friendly behavior.

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