Environmental Concern, Critical Thinking, and Creativity on Gen Z Pro-Environmental Behavior

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Abstract

Despite Generation Z exhibiting high environmental concern, their pro-environmental behavior on social media remains notably low. To address this gap, this study examines how environmental concern and critical thinking influence pro-environmental behavior among Generation Z on social media, with creativity functioning as a mediating mechanism. Employing a quantitative approach, data were gathered from 500 Generation Z respondents aged 13–28 years in Central Java through a five-point Likert-scale questionnaire distributed via social media platforms. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The measurement model was assessed using indicator loadings, Cronbach's Alpha, composite reliability, average variance extracted (AVE), and the heterotrait–monotrait ratio (HTMT), whereas the structural model was evaluated through bootstrapping with 5,000 subsamples. The findings confirm that environmental concern and critical thinking significantly enhance creativity, which subsequently fosters pro-environmental behavior. In addition, both environmental concern and critical thinking demonstrate direct positive effects on pro-environmental behavior. Creativity was found to partially mediate both relationships, producing significant indirect effects. The structural model explains 66.1% of the variance in pro-environmental behavior and exhibits strong predictive relevance. This study contributes to sustainability literature by clarifying the psychological pathways through which individual traits translate into green behavior within digital contexts. Practically, organizations should design interactive social media campaigns that stimulate critical thinking and creative expression to effectively promote sustainable behavior among Generation Z

Keywords: Environmental Concern, Critical Thinking, Creativity, Pro-Environmental Behavior, Generation Z

INTRODUCTION

Indonesia faces significant and escalating environmental pressure as national waste generation reached 35.2 million tons in 2024, with 18.3% remaining unmanaged, equivalent to 13.5 million tons polluting the environment (KLHK, 2024). Meanwhile, 98.2% of Generation Z are active internet users with average social media usage of 3.18 hours per day (APJII, 2024). In 2025, there were 9.9 million tons of plastic waste, which accounted for 13.9% of total waste. Despite the availability of waste banks and processing facilities, low public awareness continues to hinder the achievement of environmental sustainability, particularly among youth who dominate digital platforms yet show limited pro-environmental action online.

Based on the Theory of Planned Behavior (TPB) (Ajzen, 1991), environmental concern and critical thinking serve as important predictors of pro-environmental behavior (Dioba et al., 2024). However, empirical evidence confirms that problem awareness does not automatically predict action, as structural and psychological barriers disrupt the attitude-behavior link (Lingga et al., 2024). Prior studies predominantly examined direct relationships, overlooking the cognitive mechanism that transforms internal values into digital action (Srijati, 2025). Creativity, defined as an individual's capacity to produce original and valuable

ideas (Akkoz & Erbaş, 2020), is theoretically positioned to bridge this gap, as social media algorithms favor original and engaging content. Despite its potential, empirical evidence on creativity as a mediating variable linking environmental concern, critical thinking, and pro-environmental behavior remains scarce, especially among Generation Z in Indonesia.

Addressing this gap is crucial because digital environmentalism relies heavily on creative content to achieve visibility and influence within the attention economy, where content competes for user focus. Without creativity, high levels of environmental concern and critical thinking may not translate into impactful online behavior, as static information struggles to compete. This attitude-behavior gap is particularly salient among Generation Z, who exhibit high environmental concern but require specific cognitive triggers to convert concern into creative digital content (Nugroho, 2021).

By integrating creativity as a mediational pathway, this study offers novelty by extending TPB with a cognitive-creative framework tailored to Gen Z's social media context, moving beyond traditional linear models. Therefore, this study aims to identify creativity as a mediating variable linking environmental concern and critical thinking with pro-environmental behavior on social media among Generation Z in Central Java. Theoretically, the findings contribute to TPB by clarifying the mechanism of pro-environmental behavior. Practically, this research provides insights for educators to embed creativity-based environmental programs, for policymakers to engage Gen Z creators as digital green ambassadors, and for social media platforms to design features that incentivize creative environmental content.

RESEARCH METHODOLOGY

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4.0. PLS-SEM was chosen because it is suitable for predictive research and mediation analysis without strict data normality requirements (Hair et al., 2022; Nasution et al., 2025).

RESULTS AND DISCUSSION

Table 1. Results of Convergent Validity and Reliability Tests

Variable	Outer Loading	AVE	Composite Reliability	Cronbach's Alpha	Conclusion
Environmental Concern (X1)	0.693 – 0.778	0.547	0.953	0.947	Valid & Reliable
Critical Thinking Ability(X2)	0.618 – 0.823	0.577	0.948	0.941	Valid & Reliable
Creativity (Z)	0.889 – 0.927	0.828	0.954	0.948	Valid & Reliable
Pro-Environmental Behavior (Y)	0.631 – 0.825	0.581	0.983	0.981	Valid & Reliable

Source: Processed data, 2026

Table 1 indicates that all indicators demonstrated outer loadings above 0.6, thereby confirming convergent validity. In addition, all constructs attained AVE values greater than 0.5 and Composite Reliability values exceeding 0.7, thus establishing the reliability of the measurement instrument.

3.1.2 Structural Model Evaluation

The coefficient of determination was employed to assess the explanatory power of the model.

Table 2. R-Square Test Results

Endogenous Variable	R-Square	Category
Pro-Environmental Behavior on Social Media (Y)	0.661	Moderate
Creativity (Z)	0.296	Moderate

Source: SmartPLS 4.0 output, data processed 2026

Table 2 reveals that Environmental Concern, Critical Thinking Ability, and Creativity collectively accounted for 66.1% of the variance in Pro-Environmental Behavior. Conversely, Environmental Concern and Critical Thinking Ability explained 29.6% of the variance in Creativity.

Hypothesis testing was conducted using the bootstrapping procedure with 5000 subsamples. The path coefficient results are presented in Table 3.

Table 3. Hypothesis Testing Results

Hypothesis	Path	Original Sample	T Statistics	P Values	Conclusion
H1: X1 → Z	EC→ Creativity	0.209	4.587	0.000	Supported
H2: X2 → Z	CT → Creativity	0.380	7.328	0.000	Supported
H3: X1 → Y	EC → PEB	0.206	4.711	0.000	Supported

Source: SmartPLS 4 analysis result, 2026

All hypotheses were supported, as indicated by p-values below 0.05.

The empirical findings are interpreted and discussed in relation to previously published research.

Effect of Environmental Concern on Creativity

The results indicate that Environmental Concern exerted a positive and significant effect on Creativity with $\beta = 0.209$, $p < 0.001$. This finding aligns with the Theory of Planned Behavior, specifically the perceived behavioral control dimension, which posits that individuals with heightened environmental awareness are more inclined to generate creative ideas for pro-environmental actions. Generation Z respondents with elevated environmental concern demonstrated a propensity to produce engaging environmental content, motivated by a sense of

responsibility toward environmental conservation. This result is consistent with Nguyen et al. 2023, who reported that environmental concern enhances creative engagement on social media platforms.

Effect of Critical Thinking Ability on Creativity

Critical Thinking Ability demonstrated a positive and significant effect on Creativity with $\beta = 0.380$, $p < 0.001$. The magnitude of this effect exceeded that of Environmental Concern, suggesting that critical thinking plays a more substantial role in fostering creativity. This is substantiated by descriptive statistics indicating that respondents' critical thinking skills were categorized as "very high," with a mean score of 4.12. Generation Z individuals capable of critically evaluating environmental information without immediate acceptance were more likely to develop innovative narratives and diverse content formats. This finding reinforces the TPB premise that attitudes toward behavior are shaped by comprehensive understanding of the issue.

Mediating Role of Creativity

The R-Square value for Creativity was 0.296, indicating that Environmental Concern and Critical Thinking Ability explained 29.6% of its variance. The remaining 70.4% is presumably attributable to other factors, such as design proficiency and support from creator communities. Nevertheless, Creativity functioned effectively as a mediator connecting environmental concern and critical thinking to pro-environmental behavior. This finding constitutes the novelty of the present study: social media, as a visual platform, necessitates the capacity to process messages aesthetically and communicatively, thereby positioning creativity as a pivotal variable.

Direct Effect on Pro-Environmental Behavior

Environmental Concern also exerted a direct positive and significant effect on Pro-Environmental Behavior with $\beta = 0.206$, $p < 0.001$. The R-Square value of 0.661 demonstrates that the model robustly explains 66.1% of Generation Z's pro-environmental behavior. Respondents exhibited a high level of pro-environmental behavior, with a mean score of 3.96, as evidenced by their active engagement in sharing content and posting supportive comments.

Theoretical Implications: The findings substantiate TPB and confirm that the integration of environmental concern, critical thinking, and creativity effectively promotes pro-environmental behavior among Generation Z in the digital era.

Practical Implications: Environmental campaigns should prioritize critical thinking literacy and creative content workshops rather than solely focusing on awareness-raising initiatives.

CONCLUSION

This study concludes that Generation Z's creativity in producing environmental content on social media can be enhanced through environmental concern and critical thinking skills. Creativity is demonstrated to be a strong predictor of pro-environmental behavior while simultaneously functioning as an effective mediating variable between environmental concern, critical thinking, and pro-environmental behavior. These findings confirm that in the digital era, environmental awareness and cognitive abilities are translated into concrete actions through creative digital engagement. The Theory of Planned Behavior remains pertinent in explaining

direct relationships; however, this study extends its application by positioning creativity as a pivotal mechanism through which Generation Z realizes pro-environmental actions on social media.

RECOMMENDATION

Based on the findings, environmental education programs for Generation Z should transcend awareness campaigns and actively integrate critical thinking training alongside digital creativity development. Universities and non-governmental organizations can design workshops that equip students with the skills to critically evaluate environmental information and produce social media content that is engaging, original, and oriented toward sustainable action. Such an approach will maximize students' creative potential to amplify environmental messaging and mobilize collective action. For future researchers, longitudinal or experimental designs are recommended to establish causal relationships among variables, while expanding the sample beyond undergraduate students to include more diverse demographic groups would enhance the generalizability of results. Furthermore, pro-environmental behavior should be measured through objective methods such as social media content analysis or tracking of actual sustainable actions to mitigate self-report bias and strengthen the validity of the model.

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