The role of knowledge, sustainable consumption promotion, and consumption intention for sustainable consumption behavior

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ABSTRACT

The millennial generation plays a crucial role in making consumer decisions and has significant potential to drive the transformation towards more sustainable consumption patterns. This study aims to investigate the extent to which environmental knowledge and sustainable consumption promotion affect the intention and behavior of sustainable consumption among millennials. To test this framework, we conducted a quantitative research approach by administering an online survey to collect data from 155 millennial respondents. We utilized Structural Equation Modeling to test the proposed hypotheses. The findings of this research indicate that the level of environmental knowledge and sustainable consumption promotion have a significant influence on millennials' intention to adopt sustainable consumption behaviors, which in turn impact actual actions in sustainable consumption. The findings of this research provide valuable insights into how elements such as knowledge and promotion can act as drivers or barriers for millennials in adopting more sustainable consumption patterns. The implications of these findings have great potential in shaping the foundation of more effective strategies and campaigns to encourage sustainable consumption behavior among millennials, while also increasing awareness of pressing environmental issues.

Keywords: Sustainable consumption behaviour, Behaviour intention, Environmental knowledge, Promotion sustainable consumption

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1. INTRODUCTION

The United Nations (UN) has established 17 sustainable development goals (SDGs) that are targeted to be achieved by 2030 (United Nations, 2022). The SDGs have become a global framework that provides guidance for achieving sustainability in various aspects of life, including sustainable consumption and production as SDG 12 (Francis & Sarangi, 2022). Specifically, SDG 12.8 emphasizes the importance of providing relevant information and increasing awareness about sustainability and environmentally-friendly lifestyles (Francis & Sarangi, 2022; United Nations, 2022). To achieve these goals, it is crucial to shift towards responsible consumption behavior as a critical
step in addressing the challenges arising from unsustainable consumption patterns in various countries, including Indonesia (Yildirim, 2020; Fitriani et al., 2021).

Over the past few decades, Indonesia has witnessed a concerning trend of irresponsible consumption. Data reveals that Indonesia ranks among the largest producers of food waste globally, following Saudi Arabia and the United States (UNEP, 2021). Research conducted by the National Development Planning Agency (Bappenas) indicates that from 2000 to 2019, Indonesia disposed of 23-48 million tons of food waste annually, equivalent to 115-184 kilograms per capita per year, with significant impacts on various sectors including the economy and society. The country suffers an economic loss of Rp. 213-551 trillion per year, equivalent to 4-5% of Indonesia’s Gross Domestic Product (GDP). Socially, the wasted energy in this food is equivalent to the meals of 61-125 million people or 29-47% of Indonesia’s total population. Ironically, despite grappling with substantial food waste issues, Indonesia still faces high levels of hunger and ranks third in Southeast Asia (CNBC, 2023; Resnick et al., 2022).

The involvement of the millennial generation, which is increasingly dominant in the world’s population, is crucial in addressing environmental issues (Lavuri, 2021). This generation tends to be more aware of environmental issues and has a desire to contribute to positive change (Hanson-rasmussen et al., 2018), utilizing their digital skills to spread environmental awareness (Sogari et al., 2017). Additionally, they have the power to influence consumption trends and choose environmentally friendly products, which can drive sustainable economic growth (Falke et al., 2022). However, on the other hand, millennials still lack strong knowledge and effectiveness in these efforts, resulting in a relatively weak understanding of environmental knowledge (Saari et al., 2021), less comprehension of the environmental impact they experience (Figueroa-García et al., 2018a), and a lack of prioritization of the importance of promoting sustainable consumption in their digital activities (Piligrimiene et al., 2020).

Several previous studies have discovered a positive relationship between environmental knowledge and sustainable consumption behavior, where higher levels of knowledge on environmental issues tend to be associated with more responsible consumption behavior (Li et al., 2022; Quang & Poškus, 2019; Saari et al., 2021; Sadat & Cheah, 2022; Tan & Quang, 2023). Environmental influences, such as family, peers, personal experiences (Figueroa-García et al., 2018a; Huang et al., 2023; Lee et al., 2023; Sari & Muflikhati, 2018), and social media (Trivedi et al., 2018), also play a significant role in shaping the consumption intentions of the millennial generation. Understanding these factors can help in designing more effective approaches to transform their consumption behavior towards sustainability. Furthermore, Piligrimiene et al. (2020) suggest the importance of considering sustainable consumption promotion as a tool to encourage responsible consumption behavior. By means of public campaigns, education, and other promotional efforts (Soares et al., 2020), the millennial generation can be influenced to make more sustainable consumption choices in their daily lives (Sousa et al., 2022).

Numerous researchers have conducted studies on sustainable consumption behavior, including Chen et al. (2022), Dimitrova et al. (2022), Falke et al. (2022), Francis & Sarangi (2022), Han (2020), Huang et al. (2023), Ramkissoon & Fekete-farkas (2022), and Yildirim (2020). However, in the context of Indonesia, research on sustainable consumption behavior is still limited to a few researchers with different focuses. For example, there are analyses on corporate communication in influencing consumer perceptions and behavior (Tseng et al., 2021), sustainable food consumption behavior (Nuh et al., 2023), and environmental values and engagement (Nabif et al., 2023).

Based on this rationale, this study aims to explore the role of environmental knowledge and sustainable consumption promotion in driving sustainable consumption behavior among millennials. This research is important to be conducted in Indonesia due to the environmental issues that exist in the country, as well as findings that reveal the inconsistency of millennials. Despite having pro-environment attitudes, they fail to translate these attitudes into actual sustainable consumption behavior (Heo & Muralidharan, 2017). This inconsistency highlights the need to understand the factors that can enhance sustainable consumption behavior. By further understanding these factors, this research will make a significant contribution in developing effective strategies and interventions to promote sustainable consumption behavior among millennials.
2. RESEARCH METHOD

Measurement
This research conducted an explanatory study using an online survey method for data collection and hypothesis testing. The survey instrument was designed to obtain data on five research variables. The measurement items were taken from previous studies and slightly modified to fit this research. Environmental Knowledge was measured using seven items adopted from the studies of Saari et al. (2021) and Sadat & Cheah (2022). Promotion of sustainable consumption used four items from Pilgramiene et al. (2020). Four items from Chen et al. (2022) were used to measure Sustainable consumption behavior intention. Four items were adopted from the study of Dong et al. (2020) to measure Sustainable Consumption Behavior. In this study, a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) was used to measure respondents' responses.

Data and Sample Collection
This study utilized a non-probability sampling method with purposive sampling technique. The selection of respondents was based solely on age, specifically individuals between the ages of 18-40 who were able to participate by completing the questionnaire only once. Participation in this study was voluntary and conducted through an online survey using Google Form. Data collection took place from May to June 2023, with a total of 155 respondents who belonged to the millennial generation in South Tangerang City. To determine the sample size, the researcher referred to the study conducted by Hair et al. (2019) to ensure the appropriate sample size for this research. Furthermore, the researcher classified the respondents based on gender, age, level of education, occupation, and income level.

3. RESULTS AND DISCUSSIONS

Demographic Information
Detailed information about the demographic profile of the respondents is presented in Table 1. The total number of participants involved in this study was 155 individuals, with a composition of approximately 47% female and 53% male. The majority of respondents, around 32%, were between the ages of 22-30, while approximately 68% fell within the age range of 31-40. In terms of education, about 68% of the respondents had a bachelor’s degree, with 15% holding a master's degree and 5% possessing a diploma. Only about 1% of the respondents had a doctoral degree. Regarding employment, approximately 77% of the respondents were working, with 18% being entrepreneurs and 5% indicating that they were unemployed.
Table 1. Demographic Characteristics of Respondents

<table>
<thead>
<tr>
<th>Variable</th>
<th>Categories</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Female</td>
<td>47%</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>53%</td>
</tr>
<tr>
<td>Age Range</td>
<td>22 - 30 years</td>
<td>32%</td>
</tr>
<tr>
<td></td>
<td>31 - 40 years</td>
<td>68%</td>
</tr>
<tr>
<td>Education</td>
<td>Diploma</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Undergraduate</td>
<td>78%</td>
</tr>
<tr>
<td></td>
<td>Master</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Doctoral</td>
<td>1%</td>
</tr>
<tr>
<td>Job</td>
<td>Jobless</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Employed</td>
<td>77%</td>
</tr>
<tr>
<td></td>
<td>Entrepreneur</td>
<td>18%</td>
</tr>
</tbody>
</table>

Measurement Model Analysis

The data analysis in this research was conducted using the Smart PLS 3.0 software. This software was utilized to assess the reliability, convergent validity, and discriminant validity of the constructs in this study, as well as to test the formulated hypotheses. The use of Partial Least Squares Structural Equation Modeling (PLS-SEM) method was chosen because it is suitable for analyzing non-normally distributed data (Chin et al., 2003). Furthermore, this method can also overcome the limitations of a relatively small sample size, such as in this study involving less than 500 respondents (Hair et al., 2017).

The findings from the measurement model analysis indicate that all items meet the threshold loading value of 0.50, and the Cronbach’s alpha (CA) values are greater than 0.70 for all constructs. The composite reliability (CR) values are also above 0.70, and the average variance extracted (AVE) values exceed the threshold of 0.50 (Byrne, 2016; Hair et al., 2019). The rho_A threshold values demonstrate values higher than the recommended 0.70 threshold (Table 2), which is suitable for composite reliability (Jung & Park, 2018). Therefore, convergent validity is achieved in this study. Furthermore, for model robustness, the standardized root mean square residual (SRMR) is considered as a measure of model fit. The results indicate that an SRMR value of 0.05 indicates a satisfactory level of fit (Henseler & Sarstedt, 2013). SRMR is an absolute measure of fit and is defined as the standardized difference between observed correlations and predicted correlations. A value less than 0.08 is considered to be good fit (Pavlov et al., 2021). Henseler et al. (2016) reported SRMR as a measure of fit for PLS-SEM, which is used to avoid model specification errors.

Table 2. Convergent Validity

<table>
<thead>
<tr>
<th>Variables and items</th>
<th>FL</th>
<th>CA</th>
<th>rhoA</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I possess a substantial understanding of the underlying causes of the current environmental predicament (EK1)</td>
<td>0.919</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My knowledge concerning environmental issues propels me to adopt more sustainable consumption patterns (EK2)</td>
<td>0.876</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I carefully consider the environmental impact when purchasing products or services (EK3)</td>
<td>0.899</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I consciously avoid products packaged in single-use plastic to alleviate plastic waste (EK4)</td>
<td>0.909</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I prefer products that are recycled or possess eco-friendly labels (EK5)</td>
<td>0.900</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I actively seek out information regarding sustainable consumption practices and methods to reduce environmental impact (EK6)</td>
<td>0.881</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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My overall lifestyle wholeheartedly supports sustainable consumption behavior (EK7) 0.876

Promotion of sustainable consumption
The acquisition of knowledge regarding environmental issues aids in my comprehension of the environmental impact of consumption (PS1) 0.877
Promotion of green products captures my attention and influences my consumption choices (PS 2) 0.877
Promotion of recycling enhances my awareness and participation in waste separation and recycling (PS3) 0.893
Environmental campaigns conducted by communities or organizations motivate me to adopt sustainable consumption (PS4) 0.845

Sustainable consumption behaviour intention
I am willing to pay a premium for products that have a lower environmental impact (SBI1) 0.928
Sustainability factor is one of my primary considerations in making purchasing decisions (SBI 2) 0.923
I have a strong desire to transform my consumption habits into more sustainable ones (SBI 3) 0.922
I believe it is important to share information about sustainable consumption with family and friends (SBI4) 0.932

Sustainable Consumption Behavior
I take into account the environmental impact when buying products (SCB1) 0.870
I strive to reduce the use of disposable products and switch to reusable ones (SCB2) 0.886
I make an effort to recycle recyclable products instead of throwing them away (SCB3) 0.774
I am concerned about environmental damage and take small steps to reduce my impact (SCB4) 0.816

FL, Factor Loading; CR, Cronbach’s Alpha; rhoA, Dillon-Goldstein’s rho; CR, Composite Reliability; AVE, Average Variance Extracted

Table 3 presents discriminant validity, evaluated based on Fornell & Larcker’s criteria (1981) and the Heterotrait and Monotrait Ratio (HTMT) (Henseler et al., 2015). The findings indicate that the square root of the Average Variance Extracted (AVE) for each construct is higher than its correlation with the corresponding constructs, indicating discriminant validity. To ensure stronger discriminant validity, we also considered the HTMT ratio from the correlation method. The results show that the discriminant validity does not violate the recommended HTMT value of 0.85 (Kline, 2016), indicating no multicollinearity issues among the construct items.

<table>
<thead>
<tr>
<th>Table 3. Discriminant validity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fornell-Larcker Criterion</strong></td>
</tr>
<tr>
<td>EK</td>
</tr>
<tr>
<td>EK 0.895</td>
</tr>
<tr>
<td>PS 0.632</td>
</tr>
<tr>
<td>SBI 0.600</td>
</tr>
<tr>
<td>SCB 0.876</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Heterotrait-Monotrait Ratio (HTMT)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>EK</td>
</tr>
<tr>
<td>EK 0.679</td>
</tr>
<tr>
<td>PS 0.623</td>
</tr>
<tr>
<td>SBI 0.847</td>
</tr>
</tbody>
</table>
Constructs and abbreviations that are appropriate are as follows: EI, Environmental Influences; EK, Environmental Knowledge; PS, Promotion of sustainable consumption; SCB, Sustainable Consumption Behavior; SBI, Sustainable consumption behaviour intention.

**Structural Model Assessment**

Collinearity analysis, known as variance inflation factors (VIF), is evaluated as an effective alternative method for identifying multicollinearity issues. The results of the collinearity test and VIF values for each construct are presented in Table 4. All VIF values are below the threshold of 3.3. This indicates that there are no significant multicollinearity problems in this study (Diamantopoulos & Siguaw, 2006). A structural model is used to depict the cause-and-effect relationships between independent and dependent constructs. In this study, bootstrapping approach was employed with 5,000 resamplings to evaluate the significance of path coefficients (Hair et al., 2017). The hypothesis relationships are shown in Table 4.

<table>
<thead>
<tr>
<th>Hypothesis relationship</th>
<th>Beta</th>
<th>SD</th>
<th>t-value</th>
<th>p-value</th>
<th>VIF</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a EK → SBI</td>
<td>0.294</td>
<td>0.065</td>
<td>4.524</td>
<td>0.000</td>
<td>1.666</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2a PS → SBI</td>
<td>0.477</td>
<td>0.062</td>
<td>7.730</td>
<td>0.000</td>
<td>1.666</td>
<td>Accepted</td>
</tr>
<tr>
<td>H1b EK → SCB</td>
<td>0.676</td>
<td>0.042</td>
<td>15.987</td>
<td>0.000</td>
<td>1.835</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2b PS → SCB</td>
<td>0.093</td>
<td>0.049</td>
<td>1.881</td>
<td>0.061</td>
<td>2.113</td>
<td>Rejected</td>
</tr>
<tr>
<td>H3 SCBI → SCB</td>
<td>0.237</td>
<td>0.052</td>
<td>4.557</td>
<td>0.000</td>
<td>1.965</td>
<td>Accepted</td>
</tr>
<tr>
<td>Mediating effect SBI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1c EK → SBI → SCB</td>
<td>0.070</td>
<td>0.021</td>
<td>3.342</td>
<td>0.01</td>
<td>Accepted</td>
<td></td>
</tr>
<tr>
<td>H2c PS → SBI → SCB</td>
<td>0.113</td>
<td>0.028</td>
<td>4.110</td>
<td>0.000</td>
<td>Accepted</td>
<td></td>
</tr>
</tbody>
</table>

The findings indicate that environmental knowledge (β = 0.294, t = 4.524, p < 0.000) and promotion of sustainable consumption (β = 0.477, t = 7.730, p < 0.000) are each correlated with the intention for sustainable consumption. Therefore, hypotheses H1a and H2a are accepted. Likewise, environmental knowledge (β = 0.676, t = 15.987, p < 0.00) and the intention for sustainable consumption (β = 0.237, t = 4.557, p < 0.000) are correlated with sustainable consumption behavior. However, promotion of sustainable consumption (β = 0.093, t = 1.881, p > 0.061) is not correlated with sustainable consumption behavior. Therefore, H1b and H3 are accepted, while H2b is rejected. Additionally, there is evidence that the intention for sustainable consumption mediates the influence of environmental knowledge (β = 0.070, t = 3.342, p < 0.001) and promotion of sustainable consumption (β = 0.114, t = 4.110, p < 0.000) on sustainable consumption behavior. Therefore, H1c and H2c are accepted.

**Discussion**

This research has examined and confirmed several hypotheses related to the factors influencing sustainable consumption behavior. The analysis of the research findings provides valuable insights into the relationship between the variables studied and sustainable consumption behavior. Overall, this research yields consistent findings with previous literature and contributes new insights in understanding the factors influencing sustainable consumption behavior.
The research findings indicate that environmental knowledge has an influence on sustainable consumption intention (H1a). This finding is consistent with previous research findings (Bala et al., 2022; Dimitrova et al., 2022; Michel et al., 2022; Saari et al., 2021). It aligns with the general view that individuals who have a better understanding of environmental issues are more likely to have a stronger intention to adopt sustainable behaviors. These results reflect individuals' awareness of the environmental impact, which motivates them to take more responsible actions in their consumption. Similarly, the second finding also highlights the impact of sustainable consumption promotion on sustainable consumption intention (H2a). This finding also validates previous research (Piligrimiene et al., 2020; Pop et al., 2020; Silberer et al., 2020; Sun & Xing, 2022) that educational efforts and promotion regarding sustainable consumption can influence individuals' intention to change their consumption behavior. This indicates that educational messages and support from various stakeholders can play a crucial role in shaping sustainable consumption intention (Sousa et al., 2022). The finding emphasizes the need for collective efforts from various parties, including the government, non-profit organizations, and the private sector, to create an environment that supports sustainable consumption.

Furthermore, research findings have confirmed the direct effects of the identified factors, namely environmental knowledge, promotion of sustainable consumption, and intention for sustainable consumption, on sustainable consumption behavior. These findings indicate that environmental knowledge and intention for sustainable consumption have a significant direct influence on sustainable consumption behavior (H1b & H3), consistent with previous studies (Nabif et al., 2023; Piligrimiene et al., 2020; Quang & Poškus, 2019; Saari et al., 2021; Tan & Quang, 2023; Zeng et al., 2023), affirming the crucial role of these elements in shaping individuals’ actual actions in adopting more sustainable consumption patterns. Interestingly, sustainable consumption promotions do not have a significant influence on sustainable consumption behavior (H2b). This finding contradicts previous research (Dinh et al., 2023; Jaiswal et al., 2022; Kumar & Pandey, 2023; Piligrimiene et al., 2020) that reported a direct effect of sustainable consumption promotions on sustainable consumption behavior. These findings indicate that although promotions may encourage intentions for sustainable consumption, other factors such as knowledge and environmental influences may have a more dominant role in shaping actual actions towards sustainable consumption.
The hypotheses H1c and H2c assume that the intention of sustainable consumption acts as a mediator in the relationship between environmental knowledge and the promotion of sustainable consumption towards sustainable consumption behavior. Research findings affirm that the intention of sustainable consumption plays a significant mediating role between environmental knowledge and the promotion of sustainable consumption towards sustainable consumption behavior. These results are consistent with previous studies (Made et al., 2022; Matharu et al., 2021; Saari et al., 2021; Sheoran & Kumar, 2022), which indicate that the intention of sustainable consumption serves as the key link explaining how environmental knowledge influences sustainable consumption behavior. Additionally, the intention of sustainable consumption can also connect the effects of promoting sustainable consumption and directly influence the desired behavior.

4. CONCLUSION
The research findings indicate that there is a positive correlation between environmental knowledge and the promotion of sustainable consumption with the intention of sustainable consumption. Additionally, environmental knowledge and the intention of sustainable consumption are also positively related to sustainable consumption behavior. However, the promotion of sustainable consumption does not have a significant correlation with sustainable consumption behavior. In this context, the findings suggest that the intention of sustainable consumption acts as a mediator that links the influence of environmental knowledge and the promotion of sustainable consumption to sustainable consumption behavior. Overall, these findings support the proposed hypothesis and provide a deeper understanding of the factors influencing and linking the intention and behavior of sustainable consumption. To address the limitations of this research, a qualitative approach can be utilized to gain deeper insights into individuals’ perceptions and experiences in the context of sustainable consumption behavior. Furthermore, future research can broaden the scope of factors influencing consumption behavior, including cultural, economic, and psychological aspects in more detail. Additionally, field experiments can be conducted to measure the actual impact of sustainable consumption promotion on daily consumption behavior.

REFERENCES


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