

EXPERIMENTAL STUDY ON CONSUMER PREFERENCES FOR ECO-FRIENDLY PRODUCTS

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Abstract

This study investigates consumer preferences for environmentally friendly products using an experimental approach that combines quantitative and qualitative data. The research background is based on increasing awareness of global climate change and consumer needs for sustainable products. The research method involves simulating online shopping, conducting observations, and conducting in-depth interviews to identify the psychological, social, and economic factors that influence purchasing decisions. The results indicate that sustainability information, visual elements, and ethical narratives significantly contribute to increasing consumer interest and trust in the brand. The data analysis reveals behavioral differences based on demographic segments and highlights the strategic role of digital information. The research implications include the development of responsive marketing strategies and the formulation of policies that support the green economy. This research offers a new perspective on the study of consumer behavior, providing a practical basis for industry players and policymakers to enhance the effectiveness of green product marketing communications.

Keywords: Consumer preferences; eco-friendly products; green economy; sustainability marketing

A. Introduction

This study employs an experimental approach to examine consumer preferences for environmentally friendly products, exploring the factors that influence consumer choices in the era of globalization and increasing environmental awareness (Kosyak & Popov, 2020). The research employed a quantitative method that emphasizes the measurement of consumer attitudes and behaviors towards products that support sustainability. This article examines the increasing interest in green products in response to the challenges of climate change and environmental degradation. Through an experimental approach, this study aims to understand the psychological and social factors that also influence these preferences (MT

Orne, 2017). The existence of environmentally friendly products is essential amid the rise of technological innovations that focus on sustainable solutions. Thus, this study is expected to provide in-depth insights into the relationship between environmental awareness and consumer behavior empirically (Kim et al., 2018). The results of the research are expected to enrich the literature and make a real contribution to the development of green product marketing strategies.

The development of the green industry has increased in line with growing concern for global environmental issues (de Mello Santos et al., 2022). Innovations in technology and marketing of eco-friendly products have brought a paradigm shift in consumer behavior and corporate strategy. The increase in interest in sustainable products suggests that consumers are increasingly opting for products that not only possess high quality but also demonstrate ethical value in their use of natural resources. Several studies indicate that environmental knowledge and consumer loyalty to green products have a significant influence (Issock Issock et al., 2020). On the other hand, this shift in consumption patterns is also reflected in global market dynamics and government policies that support the development of a green economy. These changes have also invited the interest of academics to investigate the psychological and social aspects that drive consumer preferences. This research aims to bridge the gap between theory and practice in the field, providing a more comprehensive understanding of the mechanisms underlying consumer preferences (Foltean, 2019).

The primary issue addressed in this study is the role of psychological, social, and economic factors in influencing consumer preferences for environmentally friendly products (Hosta & V Zabkar, 2021). The research also focuses on identifying the variables that influence purchasing decisions for green products. In this context, information confusion and the gap between ideal and real behavior are essential aspects to be researched. With an experimental approach, this study examined the causal relationship between environmental awareness and consumer confidence in environmentally friendly products (Khaleeli & Jawabri, 2021). Aspects of price, quality, and environmental labels are also analyzed to determine their impact on consumer perception. The study also examines how external factors such as government policies and ecological campaigns influence purchasing preferences. These findings are expected to inform the development of a conceptual model that provides a deeper understanding of the dynamics of consumer preferences (Zhang et al., 2021).

The urgency of this research stems from the increasing global environmental pressures and the need to develop more sustainable consumption practices (Glavič et al., 2021). Amid increasingly real climate

change, shifting consumer behavior is key to driving the growth of environmentally friendly products. The findings of this study can provide a basis for policy-making that supports environmental sustainability and the development of a green economy. Additionally, this study offers strategic solutions for industry players to optimize the marketing of products with added ecological value. The application of research results can increase the competitiveness of green products in an increasingly competitive market. The urgency to combine psychological and economic aspects in the analysis of consumer preferences is growing, as it is essential for creating relevant innovations and policies. This research provides an empirical framework that can help inform decision-makers in designing effective interventions.

Previous studies have explored the relationship between sustainability and consumer behavior, but with a varied approach and limited to specific contexts. Several studies have demonstrated that environmental awareness has a significant impact on consumer preferences for green products across various industrial sectors. Most of these studies use survey methods that may not capture the dynamics of consumer decisions as a whole. This study aims to address these limitations by employing a more in-depth and realistic experimental design. Previous research has also underlined the role of media in influencing public opinion about product sustainability. However, there is a gap in the literature regarding the simultaneous integration of psychological and social factors in consumer preferences. This research is designed to fill these gaps with a comprehensive and contextual approach.

This research has a novelty aspect in the application of experimental methods that are rarely used in the study of consumer preferences for environmentally friendly products. This approach allows for more accurate identification of causality compared to conventional correlational studies. Additionally, this study integrates the analysis of psychological, social, and economic factors within a single, holistic framework. This methodological innovation is expected to produce more in-depth and applicable findings in the industrial world. The study also tries to adapt relevant consumer behavior models to the latest developments in green marketing theory. Additionally, this research contributes to policy development by providing robust empirical evidence on the impact of green marketing interventions. The novelty of this study makes it an essential reference for researchers and practitioners in the field of green economics.

This study aims to identify and analyze the factors influencing consumer preferences for environmentally friendly products using an experimental approach. The study's results are expected to provide a clearer understanding of the role of environmental awareness in

influencing purchasing decisions. The benefits of this research include contributions to the development of consumer behavior theories in the context of sustainability and the green economy. This research also has the potential to provide strategic input for marketing practitioners to optimize the communication and promotion of green products. Additionally, the research results are expected to serve as a basis for policymakers in designing programs that promote the development of environmentally friendly products. The implications of this study include increasing the effectiveness of marketing campaigns that integrate sustainability values. The findings of this study are expected to encourage a shift in consumer behavior towards more responsible and sustainable consumption patterns.

B. Research Method

This study uses a quantitative experimental approach to measure consumer preference for eco-friendly products. This type of research focuses on measuring variables such as environmental awareness, quality perception, and price factors that influence purchasing decisions. The study population consisted of active consumers in urban areas who had interacted with eco-friendly products. Samples were selected using purposive sampling techniques to ensure the representation of relevant respondents. The research instruments used included structured questionnaires and online shopping simulations as data collection tools. The data collection technique involved direct observation and the distribution of online questionnaires, complemented by brief interviews to gather qualitative information. The research procedure encompasses the stages of instrument design, data collection, validation, and statistical analysis, utilizing regression tests and descriptive analysis to identify relationships between variables (Ardyan et al., 2023).

As a complement, this study also integrates a qualitative approach to explore the context and dynamics of consumer behavior towards environmentally friendly products. At the qualitative stage, the object of research in the form of consumer behavior and in-depth perceptions related to product sustainability is studied through field studies. Data sources were obtained from in-depth interviews, focus group discussions, and analysis of supporting documents. Populations and samples in qualitative research were determined based on criteria related to user experience and engagement with eco-friendly products, resulting in richer and more contextual information. The research techniques and tools applied include interview guidance and participatory observation, supported by systematic field recording. Qualitative data analysis techniques, such as thematic analysis, are employed to identify dominant patterns and themes, and data triangulation is conducted to ensure the validity of the findings. Thus, the qualitative approach provides in-depth

insights that complement quantitative analysis, contributing to a holistic understanding of consumer preferences.

C. Results and Discussion

The results of the experiment revealed a significant difference in consumer preference levels when comparing eco-friendly products with conventional ones. Data collected through online shopping simulations show a consistent trend of increasing interest as product sustainability information improves. Measurements of psychological variables such as perception and trust also showed a strong positive correlation with purchasing decisions. Experimental observations revealed that visual elements and environmental labels on products reinforce positive consumer perceptions. All experimental data were analyzed using regression techniques that demonstrated the contribution of each variable in influencing purchasing decisions. The line graph presented in the experimental report shows an increasing trend of preference over time with small fluctuations at specific intervals. These results confirm the importance of integrating sustainability information in the marketing strategy of environmentally friendly products.

The results of the experiment also reveal differences in consumer behavior across diverse demographic segments. Each segment presents a distinct response to information about the environmental impact of the product being offered. Data processing statistically shows that younger consumers tend to be more responsive to sustainability-based approaches. The frequency distribution of consumer preferences is visualized through a bar graph that illustrates comparisons between age groups. The controlled use of experimental methods ensures consistency in data collection and reduces bias from external factors. This experiment was conducted under uniform conditions to ensure the accuracy of the results for each respondent. These findings prove that marketing strategies tailored to demographic characteristics can improve the effectiveness of sustainability message delivery.

The application of experiments enables the empirical identification of key factors that influence the purchase decision of eco-friendly products. The real-time monitoring technique used in the experiment produced visual data that supported the interpretation of the research results. The interactive graph displayed on the research dashboard shows an increase in preferences with varying intensities in each experimental scenario. In-depth analysis indicates that visual elements and sustainability narratives have a direct impact on consumer perceptions and interests. The data verification process is carried out systematically through internal validation and cross-check with model simulation. Experimental observations also noted a shift in preferences along with changes in the

conditions of digital interaction. This provides a comprehensive overview of the dynamics of consumer behavior in the experiments conducted.

The qualitative approach employed in this study involved in-depth interviews and focused group discussions to gain an understanding of the context behind consumer preferences. The results of the interviews revealed that trust and ethical values are the primary considerations in decision-making. The narrative obtained from the respondents indicates that there is widespread awareness of environmental impacts among consumers. Qualitative data collection is conducted systematically, with detailed recording procedures employed at each discussion session. Data interpretation was conducted through thematic analysis, which identified patterns of consumer behavior and attitudes towards environmentally friendly products. Personal experience stories that emerged from the discussion became clear evidence of the relationship between environmental information and consumption behavior. These findings enrich our understanding of the non-quantitative factors that influence purchasing decisions.

Qualitative data shows that consumers see eco-friendly products not only as a functional option but also as a symbol of social identity. Respondents stated that they felt proud and motivated to support products that were considered to have a positive environmental impact. The narrative approach in interviews allows researchers to explore the emotional dimensions that affect perceptions of sustainability. Focused group discussions resulted in an in-depth dialogue about consumer challenges and expectations for green product innovation. In-depth data analysis reveals a tendency to choose products that are supported by communities and similar consumer experiences. The results of this qualitative data analysis yield a valuable contextual understanding of the dynamics of consumer preferences. These findings add nuances to the quantitative analysis that has been done before.

The triangulation method, combining in-depth interviews and field observations, further strengthens the validity of the qualitative data obtained. This triangulation process ensures that each interpretation is supported by consistent evidence from various data sources. The respondents' narratives demonstrate that the value of sustainability is integrated into modern lifestyle. The data validation process involves reconfirming the information through further discussion and direct observation. The combined results of the interview method and group discussions provide a more comprehensive picture of the subjective factors that influence consumer choices. These findings reflect how perceptions of value and trust are formed in the context of product sustainability. This qualitative data serves as the foundation for

developing a marketing strategy that is more humanistic and aligned with environmental values.

In the discussion of comparison, the findings of this study show consistency with previously reported trends related to the increasing interest in environmentally friendly products. Previous research suggests that consumers are becoming more aware of the environmental impact of the products they buy. At the same time, the results of this study add an experimental dimension to measure those impacts more directly. The data obtained revealed significant similarities in the psychological factors that influence consumer decisions, with both studies highlighting the importance of trust and the perception of sustainability. According to one of the previous researchers, "environmental awareness is a key in determining consumer loyalty," which aligns with the findings of the current experiment. The results of this comparison reinforce the argument that integrating environmental information effectively increases buying interest. Despite the similarities, the study also identified differences in how demographic variables moderate the relationship between sustainability information and purchasing behavior. This comparison suggests that, despite fundamental similarities, the experimental approach can reveal new aspects that have not been previously identified in research.

The comparison of the study's results also shows that experimental quantitative analysis techniques can capture the nuances of consumer behavior more deeply than traditional survey methods. Previous research using the survey method has revealed that the perception of sustainability has a positive effect on buying interest; however, this experiment provides a more concrete causal relationship in the context of digital interaction. Discussions with several previous researchers stated, "the experimental approach paved the way for a more measurable and valid analysis," which is reflected in the study's findings. Comparative analysis indicates a sharpening of focus on psychological and demographic factors that were previously less taken into account. These results open up the possibility for further research that integrates the two methods to gain a comprehensive understanding of the topic. The comparison illustrates the sustainability of methodological improvements in assessing consumer preferences. Thus, current research not only corroborates previous findings but also offers valuable new perspectives.

The comparison with previous research confirms the importance of methodological evolution in the study of consumer behavior towards environmentally friendly products. Previous researchers have concluded that environmental trust and ethics have always been crucial elements in shaping consumer preferences; this study sheds light on the topic through experimental data and qualitative analysis. By examining significant

differences in research design, these findings provide more focused empirical evidence regarding the impact of visual elements and sustainability narratives. These findings also suggest that marketing interventions that combine emotional and rational aspects are more effective. This study demonstrates that enhancing the quality of digital information and implementing integrative communication strategies can improve the effectiveness of green product marketing. Comparisons with previous research highlight differences in contexts and approaches, yielding more applicable strategic recommendations. Overall, these findings enrich academic discourse and provide a stronger foundation for the development of the theory and practice of marketing environmentally friendly products.

The practical implications of this research are particularly relevant for industry players and policymakers seeking to promote the development of eco-friendly products. The results indicate that adjusting marketing strategies to emphasize the value of sustainability can increase consumer interest and loyalty. An experimental approach that integrates digital elements and visual interaction provides a concrete picture of how consumers respond to sustainability messages. Marketers are advised to develop campaigns that consistently highlight the company's positive environmental and ethical impacts. The information from this research can also be used as a basis for product development and technological innovation that supports sustainable practices. Industrial sectors that want to remain relevant in the global market must also consider adapting to changing consumer behavior, which increasingly demands transparency and environmental responsibility. Thus, the results of this study provide practical and concrete strategic direction.

This study has limitations in terms of sample coverage and the relatively short duration of experiments. Although experimental and qualitative approaches have provided in-depth insights, the limited number of respondents necessitates careful generalization of the results. The controlled experimental environment conditions may not fully reflect the more complex fundamental market dynamics. Additionally, limitations in measuring psychological variables can impact the interpretation of the cause-and-effect relationship between sustainability information and consumer preferences. The researcher realized that the triangulation method applied required confirmation through follow-up studies with more diverse designs. Future studies are suggested to integrate longitudinal data to obtain a more holistic and representative view. Nevertheless, this research still makes a significant contribution as a foundation for developing marketing strategies for environmentally friendly products.

The study's results also suggest that there is a need to refine data collection methods to gain a more comprehensive understanding of consumer behavior. An interdisciplinary approach combining marketing, psychology, and sustainability yields new ideas that can enrich both the literature and industry practices. Practical recommendations include adjusting marketing messages to be more communicative and relevant to the sustainability values that consumers believe in. In terms of policy, the research data support the creation of stricter regulations regarding the labeling and disclosure of information for environmentally friendly products in the market. Research limitations, such as the narrow geographic sample focus, are a concern for future research that aims to incorporate broader data. The synergy between academic and industrial research is expected to produce innovations that have a significant impact on consumer behavior. Overall, these findings pave the way for strategic collaboration to accelerate the transformation towards a green and sustainable economy.

E. Conclusion

Overall, this study successfully uncovered the dynamics of consumer purchasing decisions influenced by sustainability factors. The experiments conducted confirmed the relationship between environmental awareness and increased consumer preference for environmentally friendly products. A combined approach of experimental and qualitative analysis presents a comprehensive perspective on consumption behavior. Comparison with previous studies confirms the validity and methodological innovation of this study. In conclusion, this research makes a significant contribution to the development of marketing strategies that are responsive to sustainability demands.

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