Bibliometric Analysis Using Vosviewer on Research Trends in Marketing with the Theme of Green Buying Behavior in Google Scholar

Santi Sudarsih[1]

[1]Department of Management, Universitas Negeri Jakarta, Indonesia

Abstract

This paper aim to explores the emerging focus on environmentally conscious consumer practices. Utilizing a bibliometric approach, the study examines 352 scholarly articles sourced from Google Scholar, utilizing the Publish or Perish application and VOSviewer software for data visualization and mapping. Key findings highlight a steady increase in research interest, particularly after 2021, indicating a growing academic and practical emphasis on green buying behaviors. The study presents a chronological publication trend and identifies the most prolific publishers and researchers in the field. Additionally, the research network's mapping illustrates the central themes and connections among various factors influencing green buying behavior, such as consumer awareness, marketing strategies, and the environmental impact of consumer choices.This comprehensive bibliometric analysis not only charts the evolution of research in this area but also suggests that increased attention to green marketing strategies could significantly influence consumer behavior. This is visually supported by network and density visualizations that depict the relationships and research intensity in the field, pointing to potential future directions for both academic study and practical marketing applications.

Keyword: bibliometric; green buying behavior; environment, green marketing

1. Introduction

In the last decade, concern for the environment has become a topic that has received a lot of attention, not only from researchers but also from the general public. People as consumers have an important role in deciding which products they will buy. The consumers want to have more sustainably and healthily live in recent years by using natural goods (Alhamad et al., 2023). So environmental issues are an additional consideration for consumers when making purchasing decisions. This trend has driven an increasing amount of research into green purchasing behavior. Green Buying Behavior includes decisions to buy products that are more environmentally friendly, such as products with ecological labels or those produced in a sustainable way (Zheng et al., 2021). This study is important because green purchasing behavior not only impacts consumption habits but also encourages companies to adopt more sustainable marketing strategies.

This paper aims to analyze the dynamics of research in green purchasing behavior using bibliometric techniques using VOSviewer, a software for bibliometric analysis and visualization, to map and understand developments and trends in research topics related to green purchasing behaviour. This analysis will provide insight into how the topic of green purchasing behavior has evolved over time, as well as provide insight into the future direction of research in this area. Furthermore, the results of this mapping can help researchers and

marketing practitioners to identify research gaps that still need to be explored and strengthen the knowledge base about the impact of environmental policies on consumer behaviour. By understanding trends and patterns in the existing literature, we can better formulate recommendations for researchers and practitioners to advance understanding of green purchasing behavior, thereby encouraging innovation in marketing strategies that are not only effective but also sustainable and environmentally responsible.

2. Literature Review
2.1.Green Buying Behavior

Green buying behaviour can be defined as behavioural outcome that reflecting the extent to which customer prefer or choose green products over non-green product alternatives (Zheng et al., 2021). There are several factors that influence green buying behaviour including subjective norm, attitude, environmental concern, perceived environmental responsibility, perceived severity, response efficacy. Currently green consumerism is considered as 5R consumption (Reducing, Reacessing, recycling, rescuing consumption). Green consumption can contribute to sustainable growth by harmonizing demand fulfillment and environmental preservation during the collection, use and distribution of goods.

Wu et al. (2024) investigate relationship between green behaviour and perceived benefit of green vehicles buying intention in Pakistani, Chinese and Saudi Arabian. with environmental awareness as a moderating variable. The result of this study shows that there a relationship between green behaviour and perceived benefit of green buying intention. The influence of moderating variable quite surprising, so environmental awareness is recommended for further explorations. A study also conducted to explore green buying intention in housing industry in Malaysia, the result shows that attitude, perceived behavioural control subjective norms, reasonable pricing, perceived value and green building knowledge had positive influence on green buying intention, but environmental concern didn't have a significant influence (Masukujjaman et al., 2023)

The development of Theory Green Purchase Behavior can be applicaple in tourism, hospitality and consumer behaviour sectors. Theory about green purchase behaviour can be integrated to various construct from existing social psychology theories and introduces ner elements such as image and past behaviour. Key construct of green purchase behaviour includes environmental value, ecological worldview, awareness of consequences, attitude, and personal norm. These constructs interact to influence a customer decision to engage in green purchase behaviors. The finding of the research about green purchase behaviour can be utilized by hospitality managers to focus their services in environmental image, align marketing strategies to highlight the eco-friendliness of their offering. Fostering strong environmental value among customers can significantly impact their purchase decisions (Han, 2020).

The following are variables that are related or influence green buying behaviour:

Num.	Variable	References
1.	Subjective Norm	(Zheng et al., 2021); (Masukujjaman et al., 2023); (Han, 2020);
2.	Attitude	(Zheng et al., 2021); (Masukujjaman et al., 2023); (Han, 2020); (Alhamad et al., 2023)
3	Environmental Concern	(Zheng et al., 2021); (Masukujjaman et al., 2023); (Wu et al., 2024); (Han, 2020)
4.	Perceived Environmental Responsibility,	(Zheng et al., 2021); (Han, 2020)
5.	Perceived Severity	(Zheng et al., 2021);
6.	Response Efficacy	(Zheng et al., 2021)
7.	Perceived benefit	(Masukujjaman et al., 2023); (Wu et al., 2024)
8.	Green Marketing	(Alhamad et al., 2023)

3. Material and Method

The method in this research uses bibliometrics, namely through mapping scientific journal databases with the theme green buying behavior. These article journals were obtained from the Publish or Perish (PoP) application by selecting the journal source from Google Scholar and the total data collection was 500 articles in ten years period (2014 to 2023). Data collection was carried out on May 22 2024 with the keyword green buying behavior. Then from the 500 articles that obtained from publish and perish, the author eliminated article whose year of publication was not detected so that a sample of 352 articles was obtained. The results of the PoP in (.ris) form are processed using the VOS Viewer application Version 1.6.20 to obtain mapping results.

4. Results and Discussion

Selected articles from publish perish is pulled and processed in an excel table to get data on articles published per year, the most active publishers, and the most productive authors.

a. Articles Publisher per Year

Table 1. Articles Publisher per Year

Year	Number of articles
2014	36
2015	37
2016	34
2017	32
2018	28
2019	43
2020	42
2021	37

2022	35
2023	28
Total	352

The number of published studies on Green Buying Behavior on the Google Scholar search engine in the time period 2014 to 2023 varies every year. The number of studies regarding environmentally friendly purchasing behavior is not constantly increasing or decreasing but is very fluctuating. According to the table, the highest number articles were published in 2019 to 2020. During 2019, 43 articles were published, that means 12% of total amount sample.

b. The most active publisher on Green Buying Behavior Theme
    Based on 352 articles obtained from searches via Google Scholar database in the field of green buying behavior, the top 8 publishers who have published the most research in this field are in accordance with Table 2.

Table 2. The most active publisher on Green Buying Behavior Theme Articles

Num.	Publisher	Jurnal
1.	Elsevier	90
2.	mdpi.com	33
3.	Emerald	27
4.	Taylor &Francis	24
5.	Springer	16
6.	Wiley Online Library	16
7.	researchgate.net	13
8.	Frontiers.org	13

c. The Most Productive Author
    Based on the data that has been pulled from Publish or Perish, the most productive researchers in researching midwife green buying behavior are in accordance with Table 3.

Table 3. The Most Productive Author

Selected	Author	Documents	Total link strength
☑	han, h	11	2.00
☑	kim, y	6	2.00
☑	biswas, a	4	0.00
☑	rahman, i	4	0.00
☑	thøgersen, j	4	0.00
☑	wang, y	4	0.00

There are six researchers who have published the most research on green buying behavior. Heesup Han from Sejong University, South Korea is the researcher who has published the most research on green buying behavior.

d. Development of Research regarding Green Buying Behavior Theme

After the database from publish or perish has been processed using Vosviewer, a mapping image is obtained as in Figure 2.
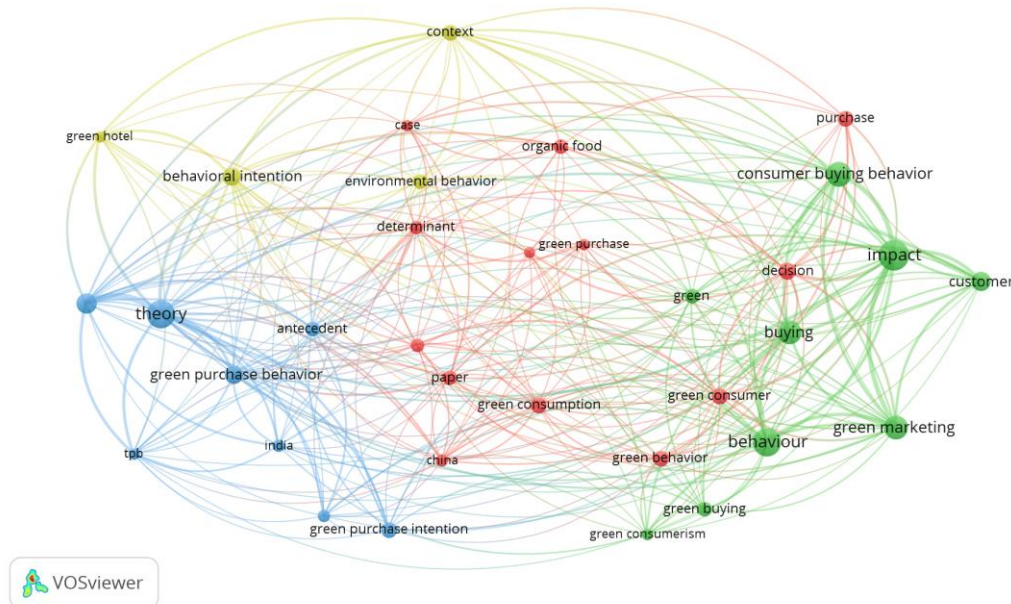

Figure 2. Results of Green Buying Behavior Mapping Using Network Visualization Display Model

There are 34 items divided into 4 clusters and there are 314 research links. Cluster 1 consists of 13 items include case, china, decision, determinant, green behaviour, green consumer, green consumer behaviour, green consumption, green purchase, organic food, paper, purchase, young consumer. Cluster 2 consists of 9 items include behaviour, buying, consumer buying behavior, customer, green, green buying, green consumerism, green marketing, impact. Cluster 3 consists of 8 items include antecedent, green purchase behavior, green purchase intention, india, planned behaviour, sustainable consumption, theory, tpb. Cluster 3 consists of 4 items include behavioural intention, context, environmental behavior, green hotel. Some strong links with green buying behavior are consumer buying behavior, green marketing, impact, buying, behavior. Meanwhile, the related links that are not so strong are green purchase intention, green consumerism, green buying, etc. Links that are not very strongly related are spread across 4 clusters marked by small circles. These small dots still do not have much research results and have the opportunity to carry out renewable research.

Figure 3. Green Buying Behavior Mapping Results Using Overlay Visualization Display Mode

From the mapping results using VOS Viewer, it can be seen that most research on green buying behavior was carried out from 2016 to 2019. The color of the dots indicates the period the research took place, namely blue (2016) to yellow (2019). It can be seen that themes such as green marketing, green purchase, green consumption started to get a lot of attention in those years.

Figure 4. Green Buying Behavior Mapping Results Using Density Visualization Display Mode

The density display mode shows that the brighter the color of the circle, the more research has been carried out, and the dimmer color indicates that there is still less research in that field. For future research, one could consider exploring how innovations in green marketing can influence the psychological aspects of green purchasing, and also how new elements such as digital technology can be utilized to increase green purchasing behavior among a wider range of consumers.

5. Conclusion, Implication, and Recommendation

The research on green buying behavior has shown significant fluctuations over the years, with a notable increase in studies from 2016 to 2019. This suggests a growing interest and recognition of the importance of sustainable consumption practices among consumers and businesses alike. The study has highlighted the importance of psychological and socio-cultural factors in influencing green buying behavior. Factors such as environmental awareness, perceived benefits, and societal norms play crucial roles in shaping consumer decisions towards green products. So the recommendation for the future researchers are below:

a. Despite the growing body of literature, certain areas remain under-researched. Future studies could explore the psychological impacts of green marketing strategies or delve into the effectiveness of digital technologies in promoting green buying behavior.

b. Given the variations in green buying behavior across different cultures, as seen in the comparative studies among countries like Pakistan, China, and Saudi Arabia, future research should consider cross-cultural analyses to better understand global patterns and regional differences.

c. To better understand the evolution and long-term trends in green buying behavior, future researchers should consider longitudinal studies that track changes over time, especially in response to global environmental crises and technological advancements.

d. There is potential for interdisciplinary research that integrates concepts from social psychology, environmental science, and digital technology. Such studies could offer more holistic insights into the drivers of green buying behavior and how they can be effectively targeted through marketing.

e. Future research should also focus on the implications of findings for policy-making and practical applications in marketing. Understanding how green buying behaviors influence policy and marketing strategies can help in designing more effective interventions to promote sustainable consumption.

6. References

Alhamad, A., Ries, E., Üniversitesi, A. K., Akyürek, M., & Baadhem, A. M. (n.d.). *Green Marketing and Attitude Affect the Consumer Buying Behavior of Green Product in Turkey*. https://doi.org/10.22441/indikato

Alhamad, A., Ries, E., Üniversitesi, A. K., Akyürek, M., & Baadhem, A. M. (2023). Green Marketing and Attitude Affect the Consumer Buying Behavior of Green Product in Turkey. *Jurnal Ilmiah Manajemen Dan Bisnis*. https://doi.org/10.22441/indikato

Han, H. (2020). Theory of green purchase behavior (TGPB): A new theory for sustainable consumption of green hotel and green restaurant products. *Business Strategy and the Environment*, *29*(6), 2815–2828. https://doi.org/10.1002/bse.2545

Masukujjaman, M., Wang, C. K., Alam, S. S., Lin, C. Y., Ho, Y. H., & Siddik, A. B. (2023). Green Home Buying Intention of Malaysian Millennials: An Extension of Theory of Planned Behaviour. *Buildings*, *13*(1). https://doi.org/10.3390/buildings13010009

Wu, J., Ahmad, S. F., Jaweria, Ali, Y. A., Al-Razgan, M., Awwad, E. M., & Bani Ahmad Ayassrah, A. Y. A. (2024a). Investigating the role of green behavior and perceived benefits in shaping green car buying behavior with environmental awareness as a moderator. *Heliyon*, *10*(9). https://doi.org/10.1016/j.heliyon.2024.e30098

Wu, J., Ahmad, S. F., Jaweria, Ali, Y. A., Al-Razgan, M., Awwad, E. M., & Bani Ahmad Ayassrah, A. Y. A. (2024b). Investigating the role of green behavior and perceived benefits in shaping green car buying behavior with environmental awareness as a moderator. *Heliyon*, *10*(9). https://doi.org/10.1016/j.heliyon.2024.e30098

Zheng, G. W., Siddik, A. B., Masukujjaman, M., Alam, S. S., & Akter, A. (2021a). Perceived environmental responsibilities and green buying behavior: The mediating effect of attitude. *Sustainability (Switzerland)*, *13*(1), 1–27. https://doi.org/10.3390/su13010035

Zheng, G. W., Siddik, A. B., Masukujjaman, M., Alam, S. S., & Akter, A. (2021b). Perceived environmental responsibilities and green buying behavior: The mediating effect of attitude. *Sustainability (Switzerland)*, *13*(1), 1–27. https://doi.org/10.3390/su13010035