Systematic Literature Review: Bibliometric Analysis of Green Consumer Behavior

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Abstract

This study aims to use bibliometric analysis to provide a systematic overview of the green consumer behaviors research from publication on Scopus from 2010 to 2021. As a result, 926 papers were found. In this study, the bibliometric analysis was performed using VOS-viewer software to see research productivity in green consumer behavior based on the increasing rate in the number of papers published and citations per year and the most leading country, institution, source title, and author in this research field. The VOS-viewer software is also used to identify the leading research and emerging topics in the research field based on visualizing the high-frequency and clustering keywords. The results of research profiling showed that green consumer behavior research articles had been published in 26 subject areas, from more than ten different institutions, 161 different journals, and 81 countries.

Keywords
Green Consumer Behavior, Research Profiling, Bibliometric, Scopus, VOS-Viewer

1. Introduction.

According to Kilbourne et al. (2002), "green consumer" does not have a universally accepted definition. Numerous definitions of sustainable or green consumers exist. Back to a long time ago, Wiener and Doesher (1991), Schwepker et al. (1991), and Schlegelmilch et al. (1996) defined a green consumer as a person who expresses a form of "pro-social" consumer behavior, or "environmentally conscious behavior" or "pro-environmental" purchasing behavior. More recently, Sajeewanie et al. (2019) identified green consumer as the person who buys, use, disposal, products, and services that positively impact the environment. De Quevedo et al. (2020) identified that the green consumer is related to the behavior of consumers who purchase products by thinking about the impact of their actions on the environment in the future. Green consumers will attempt to protect the environment in different means (e.g., examining that a package is created of recycled material, purchasing green products, saving energy, etc.) (do Paço et al. 2013).

The base of green consumer behavior can originate from the hierarchy of need from Maslow; if one person has been achieving self-actualization, he or she could add a layer into the pyramid whereby social interests become of significant variable in decision-making (Schuuring 2018). The other key reason behind consumers' moves from traditional (non-green) to greener purchasing behavior is the large number of environmental problems the consumers faced. Increasing the understanding of green consumer behavior is essential to environmental and business purposes and a consumer research perspective. From the perspective of the environment, reducing the harmful effects of consumption is vital to fulfilling some of the objectives placed ahead by the international community (OECD 2002; UNEP 2007). In business and marketing, the expansion of eco-friendly products is not effective without consumers accepting greener lifestyles and technologies. It has also been claimed that the "right" buying choice can reduce and even remove environmental harm in the following stages of the cycle of consumption (Jansson et al. 2010). In the perspective of consumer research, the behavior of decreasing the negative impact of environmental (for example, recycling, and energy conservation) has received considerably more attention than the consumer behavior of buying products that are marketed as being environmentally responsible.

To increase the understanding of green consumer behavior, it is valuable to systematically overview the green consumer research to recognize the state of play and evolution of research domains (Wilkie and Moore 2003). It is significant to trace growths in the discipline and to recognize tendencies in the research field by looking for answers

to questions such as how has research in green customer behavior in the context of purchasing or buying behavior changed over time, who are the top members (institutions and institutions) of the scholarly community in this domain of research, and what are the dominant issues in the domain of research (Porter et al. 2002). The result presented in this paper is a complement to a previous systematic overview of the green consumer research conducted by Kumar and Polonsky (2017). In this case, Kumar and Polonsky (2017) systematically review green consumer behaviors from 28 leading marketing journals with time interval 1975 until 2014. This study conducts a systematic overview of the green consumer research by carrying out the publication Scopus from 2010 to 2021. This study will analyze the bibliometric characteristics and trends of articles indexed by Scopus written by all around the world authors.

1.1 Objectives

Shortly, as a lot of research has been done regarding green consumer behavior, the purpose of the study is to use bibliometric analysis to systematically overview the green consumer behaviors research from the publication on Scopus from 2010 to 2021.

2. Literature Review

2. 1 Definition of Green Consumer Behavior

Several definitions of green consume behavior can be seen in the Table 1.

Table 1. Definition of Green Consumer Behavior

Source	Definition
De Oliveira and Sousa (2020)	Green customer behavior is a form of consumer behavior that is in line with environmental protection for now and for future generations.
De Quevedo et al., (2020),	Green customer behavior is consumer behavior that assesses the impact of their actions on the environment in the future. Thus, the actions taken do not benefit themselves but also benefit society as a whole.
Yıldırım et al (2020)	Green customer behavior is consumers who buy environmentally friendly products such as ecological, organic, or energy-efficient products and because they think they will consume fewer natural resources.
Araújo and Moreira (2020)	Green customer behavior is the behavior of consumer who is concerned with individual environmental and social needs, addresses the market in such a way that ignores the maximization of the primary fulfillment of consumer needs, as per the ecological limitations and guidelines.
Popescu (2020)	Green customer behavior refers to the consumers' behavior beliefs that the limited resources to meet individual and social needs must be used efficiently according to the environmental restrictions and regulations.
Sen et al., (2019)	Green customer behavior refers to the consumer's behavior who opt for greener products.
Mansvelt and Robbins (2011)	Green customer behavior is someone aware of his or her obligation to protect the environment by selectively purchasing green products or services.
Cambridge Business English Dictionary (2011)	Green customer behavior is the behavior of a customer who wants to buy things that have been produced in a way that protects the natural environment.
Peattie (2010)	Green customer behavior is the behavior of individuals who take environmental or social issues or social criteria and lead to the purchasing and non-purchasing decision.
Moisander and Peronen (2002)	Green customer behavior refers to consumer behavior that is morally oriented and reinforced from their need or other, aiming to make a better life for society.

2. 2. Systematic Literature Review

Literature reviews show a vital function in academic exploration to collect current knowledge and assess the state of a field (Kunisch et al. 2018). The literature review is an essential part of the research since the researchers usually gather available evidence on an issue or topic before conducting new research. The literature review can be differentiated into two, namely traditional narrative reviews and systematic reviews. The narrative review usually only proposes a random selection (do not completely illustrative of the condition of present knowledge); the choice of certain studies eventually leads to what is recognized in analysis of statistical as a bias in sample selection method– a type of bias triggered by selecting a data based on non-random sample for advance investigation (Linnenluecke et al. 2020). Unlike narrative reviews, in systematic reviews, the researchers adopt a scientific, replicable, and precise process. In other words, a comprehensive technology that purposes to reduce bias through comprehensive literature

investigates unpublished and published studies and by delivering an audit track of the reviewer's procedures, judgments, and conclusions (Tranfield et al. 2003: 2009). The fundamental idea of a systematic review is gathering the accessible proof systematically and then offering an assessment of the proof against prearranged criteria, rather than suggesting an unsystematic assessment of merely certain studies that are believed as appropriate by the researcher (Tranfield et al. 2003). A systematic review can suggest a equalize between broadly detecting a bigger pool of publications and systematically identifying a lesser set of studies that suitable criteria that can be detailed clarify the research plan.

Usually, systematic literature reviews can be organized according to author-centric or theme-centric, or the other. There is not automatically a 'best-practices suggestion – a different approach would be needed for different reviews (Webster and Watson 2002). Author-centric reviews try to check the publications created by a definite author or team of authors one by one and describe a conclusion of the results (e.g., Author A has published on the subject and reaches specific findings; Author B has also published this topic and reaches the specific findings, and so on). The author-centric review is occasionally used to describe the chronological situation to get information about the origin of a theory, topic, or issue. The theme-centric is a more common approach. In theme-centric, the researcher would direct the reader how the contribution of previous publications to increasing our thoughtful of phenomena of interest and certain concepts or themes (Linnenluecke et al. 2020).

Then, bibliometric analysis is an approach to the visualization of systematic literature reviews (Linnenluecke et al. 2020). The bibliometric analysis is explicitly based on the 'visualization of similarities (VOS) technique (Van Eck and Waltman 2010; Lis et al 2020). In bibliometric analysis, science mapping (as an example, co-citation of authors and co-occurrence) is used to discover the structure and evolution of the leading research area (Cobo et al. 2011; Klavans and Boyack 2006). The purpose of the co-citation analysis of authors is to identify the outstanding authors by examining citation records (White and McCain 1995). Then, the co-citation analysis of journals donates to considerate related scientific journals in the central area (McCain 1991). Co-citation analysis reveals the significance that researchers attach to a cited article. So, the more frequently a publication is referred, the more predominant it will turn out to be for developing the central area (Danvila-del-Valle et al. 2019). Co-occurrence analysis contributes to generating a term map, in which the frequency of occurrence of a specific term is described by mark size and the distance between two terms (Cardona and Sanz 2015). Therefore, the author's keywords' co-occurrence analysis can be helpful to construct a network in a specific area, which goals to discover and display the intellectual framework of a specific research arena. Then, this study uses VOSviewer software as a tool to make the co-citation analysis and co-occurrence analysis.

3. Methods

The steps taken are described in the following subsections.

- **The first was selecting the databases used for this study.**
  In considering access availability, the study selects the database from Scopus, which can deliver excellent conference proceedings and peer-reviewed journals.
- **The second step was defining the time frame and keywords**
  The frame time of analysis used for this study was from 2010 to 2021. The search involves all articles or not only articles written in English. The search was not limited to conference proceedings and journals but also books or book chapters, technical reviews, and editorials. For the keywords, this study used the term "green," consumer behavior," buying behavior," with the Boolean operator "AND," and the term "eco-friendly" with the Boolean operator "OR." This study considered the title, abstract, and keywords as the search fields and filter the results only for scientific journals. As a result, 926 papers were retrieved from 97% of its document written in English.
- **The third step was analyzing the articles and summarizing the result**
  In this step, with the help of VOSviewer software, the journals found were categorized based on the number of published papers per year. The 926 chosen papers were examined and categorized based on the type of open access publication, source type, affiliation, name of the author (include co-authorship analysis), citation of the document, and keywords (co-occurrence keyword or co-word analysis). As we have mentioned in the previous section, the co-authorship analysis was carried out to recognize the author's rank. Lastly, the co-word analysis was carried out to dimensions of the keyword network structure and the evolution of the research interests.

4. Result and Discussion

4.1 Research Productivity

The dynamics of change in the number of publications reveal the research field life cycle (Czakon 2011). Hence, examining these changes leads to a better understanding of the field development. From the beginning of 2011 to February 2021, there has been an increase in publications every year. However, the scholar's interest in researching the issues related to green consumer behavior increase tends to fall in 2013 and 2018. Of the 926 publications included in the research sample, green consumer behavior seems to have been the object of growing attention from researchers in 2019 and 2020. the peak occurred in 2020, reaching 169 publications. Figure 1 illustrates the growing trend in the number of publications in the research field. The dynamics of the increase in research productivity focused on green consumer behavior are even more visible when the number of citations is taken into account. With minimal citations in 2011, this measure continued to increase. In February 2020, the measure attained up to 4,612 citations. Figure 2 illustrate the growing trend in the number of citations in the research field.

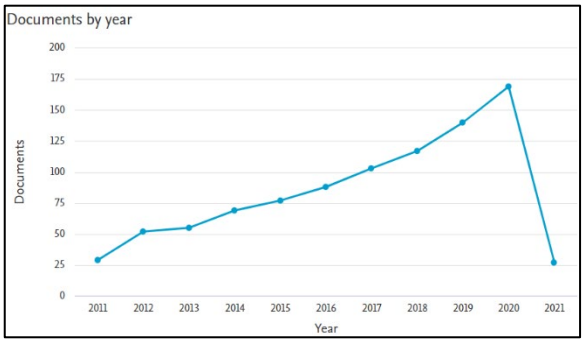

Figure 1.Scientific productivity of research on green consumer behavior measured by the number of publications retrieved from the Scopus databased (17 February 2021)

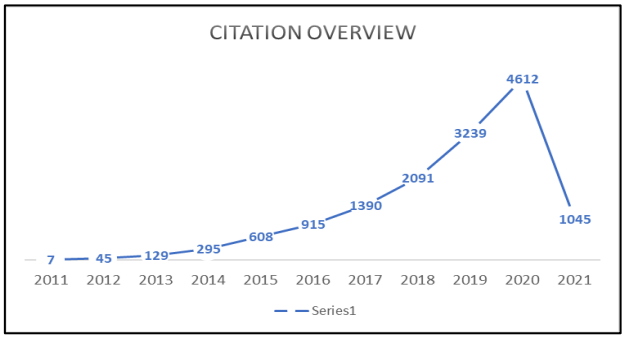

Figure 2.Scientific productivity of research on green consumer behavior measured by the number of citations retrieved from the Scopus databased (17 February 2021)

Research related to green consumer behavior is distributed over 26 subject areas, 161 different journals, and 81 countries classified by Scopus. The majority of publications are indexed within the areas of Business, Management and Accounting (375), Environmental Science (278), Social Science (216), and Engineering (196). Of the top ten most productive countries, there are both developed and developing countries. The majority are primarily originated by the Anglo-Saxon countries (the United Kingdom, the United States, Australia, and Brazil) and the Asian Nations (China, India, Malaysia, and Taiwan). The latter are continental European countries such as Germany and Spain. Universidade de Sao Paulo from Brazil, Aarhus Universitet from Denmark, and the Swinburne University of Technology from Australia are the most productive affiliated research about this field with eight publications. Other research productively made by the affiliation of other universities such as Sejong University from South Korea and INRAE from French. Universidade Estadual Paulista, Universiti Malaysia Sabah, Bournemouth University, Indian Institute of Technology, and Nanjing University are discovered as the most productive universities. According to documents in Scopus, Journal of Cleaner Production and Sustainability Switzerland are discovered to be leading source titles publishing research focused on the issues related to green purchase behavior. At the same time, Han from Sejong University deserves to be declared the most productive author with six publications. This investigation for the number of publications written by the most productive authors indicates that research in the leading universities is just centered around a relatively small group of scholars. Table 2 showed the data supporting general publication profiling of green consumer behavior.

Table 2. General publications profiling of the green consumer behavior research field retrieved from the Scopus databased (17 February 2021)

Category	Top Ten Items (Number of Publications)
Subject Area	Business, Management and Accounting (375), Environmental Science (278), Social Science (216), and Engineering (196), Energy (180), Economics, Econometrics and Finance (119), Agricultural and Biological Sciences (116), Computer Science (99), Medicine (62), Psychology (46) and Decision Sciences (25)
Country	United States (147), China (142), India (94), United Kingdom (60), Australia (53), Malaysia (50), Brazil (40), Taiwan (37), Germany (35), and Spain (32)
Research Institution	Universidade de Sao Pulo (8), Aarhus Universitet (8), Swinburne University of Technology (8), Sejong University (7), INRAE (7), Universidade Estadual Paulista (6), Universiti Malaysia Sabah (6), Bournemouth University (6), Indian Institute of Technology (6), and Nanjing University (6)
Source Title	Journal of Cleaner Production (65), Sustainability Switzerland (45), International Journal of Environmental Research and Public Health (21), International Journal of Consumer Studies (14), Journal Of Food Science (14), IOP Conference Series Earth And Environmental Science (12), Business Strategy And The Environment (11), Marketing Intelligence And Planning (11), Appetite (10), and Nutrients (10)
Author	Han, H. (6), Adnan, N. (5), Grimmer, M. (5), Khare, A. (5), Nguyen, T.N. (5), Rahman, I.(5), Xiao, T.(5), Agrawal, R.(4), Biswas, A. (4), and Gautam, A. (4)

4.2 Identify the Leading Research Topics

According to Muhammad et al. (2020), bibliometric analysis to show the structures of research fields could be effectively done by tracking the research topics within the period of the keyword occurrence network (co-word network map). To get this map, co-occurrence was chosen as the type of analysis in VOS-Viewer software, all keywords as the unit of analysis, and fractional counting as the counting method, and the thesaurus file was uploaded. The total number of keywords was 5,415. With 186 keywords appear with a threshold of minimum appearance of 10 times. Among them, those which occur the most often keywords are “consumer behavior” (455), “human” (245), “consumer attitude” (132), “consumption behavior” (111), and “green marketing” (111). Then, to facilitate keyword observation, visualization of the density of-frequency keywords shown in Figure 3. The light-yellow color indicates the more often the keywords appear in the publication, as the darker the color indicates less often keywords appear in the publication.

Figure 3. Item density visualization of high-frequency keywords in green consumer behavior research field retrieved from the Scopus databased (17 February 2021)

Then, to observe the number of research interests that have been changing during this decade, this study tries to identify the ten-best high-frequency keywords in the field of research at the beginning (2011), in the middle (2015), and the end (2020) of the period under analysis in Table 3. Given the number of occurrences of the top frequency keywords,

this study observed the consistency of study interest in the research field evolutionary process. From those three data samples, this study found foreground research topics with similar expressions. This study assumes that in 2010, researchers are still focused on the company's efforts towards a sustainable development process. This is evidenced by the keyword's sustainable development, innovation, energy conservation, energy conversion, and energy utilization. Even so, researchers have realized the vital role of marketing to influence green consumer behavior. This is proved by the frequency of green marketing and marketing keywords. In 2015, sustainable development was still a trending topic. However, research on green consumer behavior is dominated by the decision-making process, commerce, marketing, and the influence of green products on the environment and economy. Then in 2020, the green marketing variable re-emerged as a trend along with the emergence of keywords sustainability, sales, perception, purchase intention, and environmental protection.

Table 3. The top 10 high-frequency keywords in green consumer behavior research field (ranked by occurrences) retrieved from the Scopus databased (17 February 2021)

Rank	2011 keywords	Rank	2015 keywords	Rank	2020 keywords
1	Consumer Behavior (21)	**1**	Consumer Behavior (49)	**1**	Consumer Behavior (79)
2	Green Marketing (9)	**2**	Consumer Attitude (13)	**2**	Consumption Behavior (29)
3	Sustainable Development (6)	**3**	Decision Making (11)	**3**	Sustainability (28)
4	Consumption Behavior (5)	**4**	Sustainable Development (10)	**4**	Sustainable Development (28)
5	Marketing (5)	**5**	Marketing (8)	**5**	Consumer Attitude (23)
6	Innovation (4)	**6**	Economics (7)	**6**	Sales (19)
7	Behavioral Research (3)	**7**	Green Products (7)	**7**	Green Marketing (15)
8	Energy Conservation (3)	**8**	Commerce (6)	**8**	Perception (15)
9	Energy Conversion (3)	**9**	Consumption Behavior (6)	**9**	Purchase Intention (14)
10	Energy Utilization (3)	**10**	Environmental (6)	**10**	Environmental Protection (13)

Next, this study conducts network analysis to identify the leading thematic areas. Figure 4 shows the result of relatedness and co-occurrence cluster mapping from the high-frequency keywords.

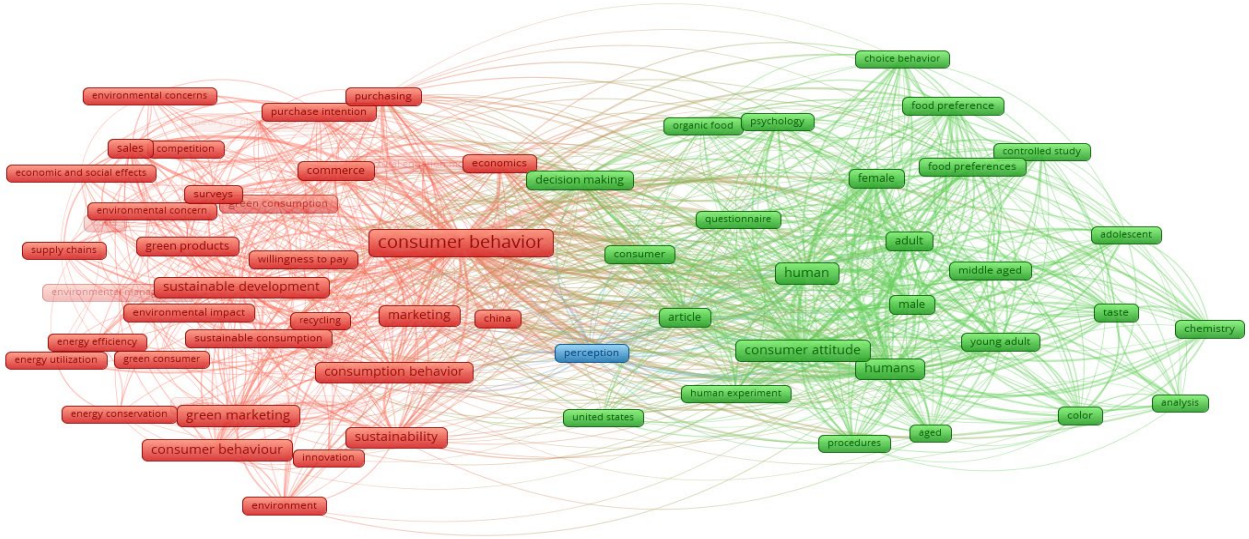

Figure 4. Clusters of high frequency keywords in green consumer behavior research field. retrieved from the Scopus databased (17 February 2021)

The distance between the elements on the map reflects their relationship (the closeness of items to each other, indicating the closeness of their relationship). In contrast, the line visibilities between the elements marked the strongest co-occurrences. Figure 4 also indicated the weights of each keyword; the larger size indicating a greater weight. In this case, the keyword with the larger size was “consumer behavior.” Then, the colors of the nodes represented the diversification of the keywords, which formed 3 clusters.

The three main thematic areas within the research field can be explained as follow. First, Internal drivers of enterprises that affect green consumer behavior consist of sales, product impact, energy efficiency, supply chains, marketing, commerce. Second, external driver (consumer's side) affects green consumer behavior, consisting of psychology, preferences, gender (male and female). Third, perception process. For detail, see Table 4.

Table 4. Composition of high frequency keywords retrieved from the Scopus databased (17 February 2021)

Cluster/label/color	Number of keywords	Keywords (occurrences, link strength)
Cluster 1/ Internal driver of enterprises that affect green consumer behavior/ red	37	Consumer behavior (510,2461), green marketing (147,318), consumption behavior (124, 530), sustainable development (114, 474), sustainability (109, 365), marketing (95,460), sales (81,329), commerce (78, 439), green products (59, 182), environmental protection (52, 293), surveys (52, 230), economics (49, 390), purchasing (49, 355), sustainable consumption (46, 149), green consumption (45, 139), environment (40, 146), theory of planned behavior (37, 139), willingness to pay (35, 142), energy efficiency (31, 93), supply chains (30, 109), procedures (27, 311), energy utilization (27, 78), environmental concern (50, 198), controlled study (24, 311), costs (24, 94), recycling (24, 80), competition (23,91), environmental management (23,78), green consumer behavior (23,37), green consumer (22, 66), India (22, 49), supply chain management (21, 113)
Cluster 2/ External driver (consumers 'side) that affect green consumer behavior/ green	27	Human (134,1408), consumer attitude (132, 11382), humans (113, 1246), female (79, 986), male (75, 943), adult (75,918), article (72,782), decision making (72,554), consumer (46, 444), young adult (42, 563) taste (42, 435) purchase intention(40, 204), middle aged (38, 513), color(37, 311), food preferences (32, 445), chemistry (32, 302), questionnaire (30,375), psychology (29,303), organic food (24,311), structural equation modelling (24, 145), adolescent (23, 295), human experiment (22,266), analysis (22,202), aged (21, 297), united states (21, 134), economic and social effects (21, 81)
Cluster 3/ perception process/ blue	1	Perception (44, 186)

Cluster 1 comprises 37 keywords; the central node is 'consumer behavior' with 510 occurrences and 2461 total link strength. The other main expression is dominated by aspects of sales, marketing, and brand image such as 'green marketing,' 'marketing,' 'sales,' 'commerce,' 'purchasing,' 'willingness to pay,' and 'environmental concern.' Cluster 1 also houses the enterprise's operations management keywords such as 'supply chains,' 'procedures,' 'environmental management, 'procedures,' 'costs,' 'recycling,' 'energy efficiency, and 'energy utilization. The country that appears in this cluster is India, while survey methods obtain the majority of data. The theory most widely used is the theory of planned behavior (TPB). Cluster 2 comprises 27 keywords; the central nodes are 'human' and 'consumer attitudes'. while the keywords in this cluster mainly focus on consumer characteristics such as 'female', 'male', 'young adult', 'middle aged', 'aged', 'adolescent', and 'food preferences'. The country that appears in this cluster is the United States. Cluster 2 is based on psychological theories; most data are obtained by questionnaire using the structural equation method (SEM). Meanwhile, cluster 3 comprises only the 'perception' keyword.

4.3 Identify the Emerging Research Topics

This study presents emerging topics in the field of research using the VOSViewer overlay visualization function. The node's color indicated the most recent keyword compare to the others; the keyword in yellow color was the most recent keyword that the green or blue keywords. Then, similar to the analysis of the main thematic areas, this study has attempted to identify what topics have drawn academics attention in several phases of research fields. Considering the top ten keywords in the line of green consumer behavior, this study observes a very interesting finding. In the early years of 2010, environmental issues became a hot topic based on the emergence of green consumer behavior researches. In 2015, green marketing became the topic most discussed by academics as one factor influencing consumer behavior. In 2016, most academic research was about green products, sustainability, and sustainable consumption, and green consumption. It was only in 2017 that academics researched the influence of environmental concerns and consumer psychology on green consumers using the theory of planned behavior. A year later, in 2018, purchase intention factors became a hot topic in the research field.

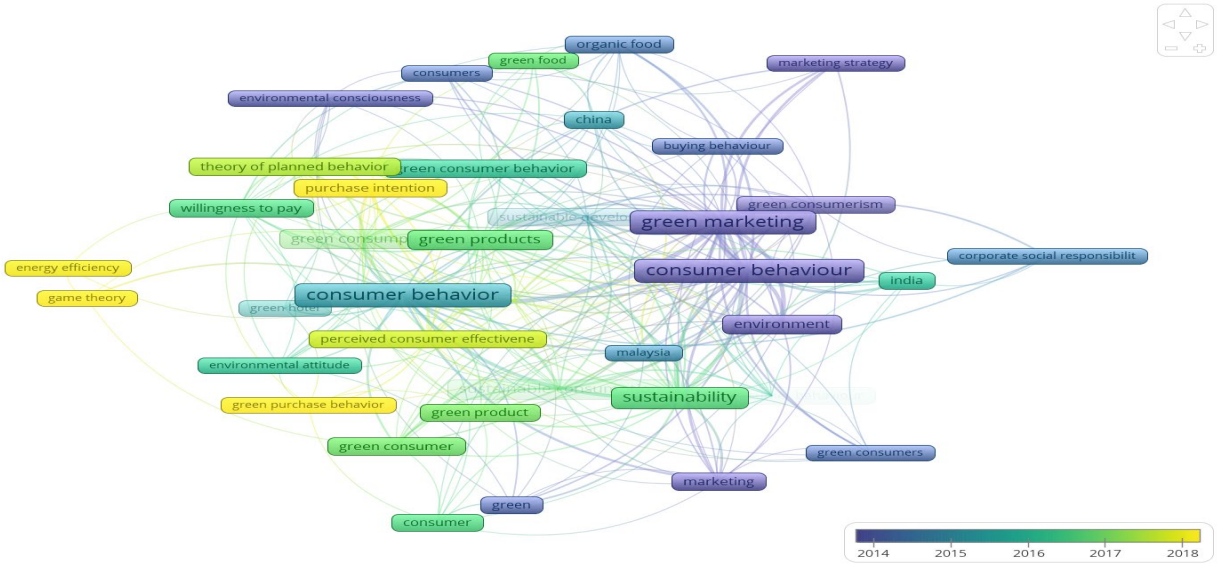

Figure 5. Clusters of high-frequency keywords in the green consumer behavior research field retrieved from the Scopus databased (17 February 2021)

Table 5. The top ten high-frequency keywords in the green consumer behavior research field (ranked by the average date of publication - ADP) retrieved from the Scopus databased (17 February 2021)

No	Keywords	ADP Year	No	Keywords	ADP Year
1	Environment	2010.75	6	Green consumption	2016.88
2	Green marketing	2013.55	7	Green products	2016.89
3	Consumer behavior	2015.27	8	Environmental Concern	2017.32
4	Sustainable consumption	2016.67	9	Theory of planned behavior	2017.38
5	Sustainability	2016.78	10	Purchase Intention	2018.42

5. Conclusion

This study aims to use bibliometric analysis as a systematic overview of the green consumer behaviors research from publication on Scopus from 2010 to 2021. In the end, this study can identify the trends of productivity in the research field, identify the main subjects and main contributors (country, research institute, source title, author) to the research field, and identify the leading and emerging topics of scientific investigation in the research field. Firstly, in 2010 or before 2018, weak signals of the academic interest towards green consumer behavior research were noticed. In this case, the number of papers published is slowly increasing before 2018. The rapid increase in the number of papers published occurred from 2018-2020. The publications related to green consumer behavior are discovered in over 20 subject areas; however, most publications are indexed in the areas of Business, Management and Accounting, Environmental Science, Social Science, and Engineering. United Kingdom, Australia, Malaysia, and Brazil are the leading countries in the research field. This study identifies that Universidade de Sao Paulo is the most productive research institution in the field, while the most contributed author is Han, H. from Korea. Journal of Cleaner Production and Sustainability Switzerland is the leading source titles.

Based on the studies that have been conducted, we find out that the hot topics areas in the green consumer research field are largely divided into three clusters, (1) internal aspect of the organization that affects green consumer behavior - sales, product impact, energy efficiency, supply chains, marketing, commerce, (2) external aspect of the organization (customer side) that affect consumer attitude towards green purchase behavior – psychology, preferences, gender (male and female), and (3) perception process. According to the identification process of the top high-frequency keywords in the green consumer behavior research field, the rise of sustainable issues and green products occurred in 2016. In 2017-2018, apart from external factors of the organization, researchers then began to pay attention to

psychological aspects such as perception, theory of planned behavior, intention, and environmental concern to examine consumer behavior.

Internal enterprises have played an essential role in escalating green consumer behavior by creating and fulfilling needs through marketing campaigns and product/service provision (Bocken and Short 2016). While Centobelli et al. (2018) highlight that the adoption of the sustainable initiative is affected by drivers and barriers affecting the individual company's environmental, economic, and operational performance and the supply chain. Yue et al. (2020) point out that environmental concern is the main factor that affects green consumption intention. Still, companies that introduce sustainable offerings face a frustrating paradox, that most consumers report positive attitudes toward eco-friendly products and services. Still, they often seem unwilling to purchase green products (White et al. 2019). This leads academics to investigate further the internal consumer-side factors that influence green consumer purchase behavior. From this study, it can be seen that many researchers have tried to look at the influence of age and gender to see consumer preferences towards the green product. According to de Leeuw et al. (2015), many factors may influence green consumer behavior, namely individual factors (such as traits, emotions, thinking skills, and daily behavior), social factors (such as culture and beliefs and political trends), and other demographic factors (such as age, religion, race, and ethnicity). Furthermore, the researcher examines further the process of receiving information (perceptions) of consumers towards green products (Zhao et al. 2018, Boesen et al. 2019, Bahrainizad et al. 2018).

This study is not free from limitations. This study was limited to bibliometric analyses, which were dedicated to analyses of the number of published articles and the domination of the institution, journal, country, authors, and keywords. This study also only used Scopus as the database. Therefore, several perspectives remain to be discovered, such as the difference between the method and data processing used. Besides, the keyword search used only common keywords, so that some related articles might have been ignored. Thus, the following research could use more specified keywords and enlarge the range of databases to include others, such as the Web of Science.

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References

Bahrainizad, M., Rajabi, A., Wilson, J. J., Wilson, J. A. J., Consumers' perception of usability of product packaging and impulse buying: considering consumers’ mood and time pressure as moderating variables, *Journal of Islamic Marketing,* vol. 9, no. 4, pp. 00–00, 2018.

Bocken, N., and Short, S. W., Towards a sufficiency-driven business model: experiences and opportunities, *Environmental Innovation and Societal Transitions,* vol. 18, March, pp. 41–61, 2016.

Boesen, S., Bey, N., dan Niero, M., Environmental sustainability of liquid foodpackaging: Is there a gap between Danish consumers' perception and learnings from life cycle assessment?, *Journal of cleaner production*, vol. 210 pp. 1193-1206, 2019.

Cambridge Business English Dictionary, *Cambridge: Cambridge University Press*, 2011.

Centobelli, P., Cerchione, R., Esposito, E., Environmental sustainability and energy-efficient supply chain management: a review of research trends and proposed guidelines, *Energies,* vol. 11, no. 2, pp.275–, 2018.

Cardona, G. and Sanz, J., Publication analysis of the contact lens field: What are the current topics of interest?, *Journal of Optometry,* vol. 8, no. 1, pp. 33–3, 2015.

Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., and Herrera, F., Science mapping software tools: Review, analysis, and cooperative study among tools, *Journal of the Association for Information Science and Technology*, vol. 62, no. 7, pp. 1382– 1402, 2011.

Czakon, W., Metodyka systematycznego przeglądu literatury, *Przegląd Organizacji,* vol. 10, no. 2, pp. 57-61, 2011.

Danvila-del-Valle, I., Estévez-Mendoza, C., and Lara, F. J., Human resources training: A Bibliometric Analysis, *Journal of Business Research*, vol. 101 (C), pp. 627-636, 2019.

De Leeuw, A., Valois, P., Ajzen, I., dan Schmidt, P., Using the theory of planned behavior to identify key beliefs underlying pro-environmental behavior in high-school students: Implications for educational interventions, *Journal of Environmental Psychology,* vol. 42, pp. 128-138, 2015.

De Oliveira, C. P., and Sousa, B. M., *Green Marketing as a Positive Driver Toward Business Sustainability, Green Consumer Behavior and Its Implications on Brand Marketing Strategy,* In Naidoo, V., dan Verma, R. (Ed.), IGI Global, 2020.

De Quevedo, A. S., Quevedo, D. M., Figueiró, P. S., dan Fernandes, E. K., *Anthropological Approaches to Understanding Consumption Patterns and Consumer Behavior. Neuromarketing as an Environmental Awareness Tool: The Sustainable Consumption,* In Chkoniya, V., Madsen, A. O., dan Bukhrashvili, P. (Ed.), IGI Global, 2020.

Do Paço, A., Alves, H., Shiel, C., and Filho, W. L., Development of a green consumer behavior model, *International Journal of Consumer Studies*, vol. *37*, no. 4, 414-421, 2013.

Jansson, J., Marell, A. and Nordlund, A., Green consumer behavior: Determinants of curtailment and eco- innovation adoption, *Journal* of *Consumer Marketing*, vol. 27, no. 4, pp. 358-370, 2010.

Kumar, P., and Polonsky, M. J., An analysis of the green consumer domain within sustainability research: 1975 to 2014, *Australasian Marketing Journal,* vol. 25, no. 2, pp. 85-96, 2017.

Klavans, R., and Boyack, K. W., Identifying a better measure of relatedness for mapping science, *Journal of the Association for Information Science and Technology*, vol. 57, no. 2, pp. 251–263, 2006.

Kilbourne, W.E., Beckmann, S.C. and Thelen, E., The role of the dominant social paradigm in environmental attitudes: a multi-national examination, *Journal of Business Research*, vol. 55, no. 3, pp. 193–204, 2002.

Kunisch, S., Menz, M., Bartunek, J. M., Cardinal, L. B. and Denyer, D., Feature topic at organizational research methods: how to conduct rigorous and impactful literature reviews?, *Organizational Research Methods*, vol. 21, no. 3, pp. 519–523, 2018.

Linnenluecke, M. K., Marrone, M., and Singh, A. K., Conducting systematic literature reviews and bibliometric analyses, *Australian Journal of Management,* vol. 45, no. 2, pp. 175-194, 2020.

Lis, A., Mapping leading and emerging topics of research on the learning organization concept in organizations in the face of growing competition, *in the Market; Ujwary Gil, A., Potoczek, N., Eds.; Institut Nauk Ekonomicznych Polskiej Akademii Nauk: Warsaw, Poland*, 2019.

Mansvelt, J., and Robbins, P., *Green consumerism: An Ato-Z guide, 1st Ed*, Thousand Oaks, CA: SAGE Publications, 2011.

McCain, K. W., Mapping economics through the journal literature: An experiment in journal cocitation analysis, *Journal of the Association for Information Science and Technology*, vol. 42, no. 4, pp. 290–296, 1991.

Moisander, J. and Pesonen, S., Narratives of sustainable ways of living: constructing the self and the other as a green consumer, *Management Decision,* vol. 40, no. 4, pp. 329–*342,* 2002.

OECD, *Towards Sustainable Household Consumption? Trends and Policies in OECD Countries, Organisation for Economic Co-operation and Development (OECD),* Paris, 2002.

Peattie, K., Green consumption: Behavior and norms. *Annual Review of Environment and Resources*, vol. 35, no. 1, pp. 195–228, 2010.

Sana, S. S., Price competition between green and non-green products under corporate social responsible firm, *Journal of Retailing and Consumer Services,* vol. 55, no. (C), pp. 102-118, 2020.

Popescu, C. R. Gh., *Building an Entrepreneurial and Sustainable Society,* Approaches to Sustainable and Responsible Entrepreneurship, Creativity, Innovation, and Intellectual Capital as Drivers for Organization Performance, IGI Global, 2021.

Porter, A.L., Kongthon, A., and Lu, J.-C., Research profiling: improving the literature review, *Scientometrics,* vol. 53, no. 3, pp. 351–370, 2002.

Sajeewanie, L. C., Ab-Yajid, M. S., Khatibi, A., Azam, F., and Tham, J., integrated model for green purchasing intention and green adoption: Future research direction, *Journal of Sociological Research*, vol. 10, no. 2, pp. 23–, 2019.

Sen, S., Bhattacharjee, K., and Rajagopal, K., *Handbook of Research on Economic and Political Implications of Green Trading and Energy Use,* Marketing of Greener Products: Trends and Practices, IGI Global, 2019.

Schwepker, C. H., and Cornwell, T. B., An examination of ecologically concerned consumers and their intention to purchase ecologically packaged products, *Journal of Public Policy & Marketing,* vol. 10, no. 2, pp. 77-101, 1991.

Schlegelmilch, B., Bohlen, G. M. and Diamantopoulos, A., The link between green purchasing decisions and measures of environmental consciousness, *European Journal of Marketing*, vol. 30, no. 5, pp. 35-55, 1996.

Schuuring, E, *The attitude-behaviour relationship of green consumer behaviour: the influence of altruism and egoism: greenness out of selfishness or selfishness?* Master Thesis Marketing, Radboud University, 2018.

Tranfield, D., Denyer, D., and Smart, P., Towards a methodology for developing evidence-informed management knowledge by means of systematic review, *British Journal of Management,* vol. 14, pp. 207-222, 2018.

UNEP, *Global Environment Outlook (GEO 4): Environment for Development,* United Nations Environment Programme (UNEP) Report, 2007.

Van Eck, N. J., and Waltman, L., Software survey: VOSviewer, a computer program for bibliometricmapping, *Scientometrics*, vol. 84, pp. 523–538, 2010.

White, H. D., and Mccain, K. W., Visualizing a discipline: An author co-citation analysis of information science, *Journal of the Association for Information Science and Technology*, vol. 49, no 4, 1972–, 1998.

Wiener, J. L., and Doesher, T. A. A., Framework for promoting corporation, *Journal of Marketing*, vol. 55, pp. 38-47, 1991.

Wilkie, W.L., and Moore, E.S., Scholarly research in marketing: exploring the "4 eras" of thought development, *Journal of Public Policy and Marketing*, vol. 22, no. 2, pp. 116–146, 2003.

Yıldırım, S., Yıldırım, D. Ç., and Gedikli, A., *Sustainable Consumption Trends in the World in the Context of Green Economy and Sustainability,* In Erdoğdu, M. M., Arun, T., dan Ahmad, I. H. (Ed.), Handbook of Research on Green Economic Development Initiatives and Strategies, IGI Global, 2016.

Zhao, R., Geng, Y., Liu, Y., Tao, X., and Xue, B., Consumers' perception, purchase intention, and willingness to pay for carbon-labeled products: A case study of Chengdu in China, *Journal of Cleaner Production,* vol.171, pp. 1664–1671, 2018.

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