CREDIBILITY IN GREEN ADVERTISING: A BIBLIOMETRIC ANALYSIS AND SYSTEMATIC LITERATURE REVIEW

Isha Verma*

*PhD Scholar, Dept. of Commerce,
Delhi School of Economics University of Delhi,
Delhi, INDIA
Email id: ishaverma@outlook.com

ABSTRACT

Consumers are becoming more aware of environmental issues and prefer companies with genuine green practices. Researchers are progressively more focused on understanding consumers' perceptions of the credibility of green advertising. This study seeks to analyse historical research trends and propose future directions by usingco-authorship and co-occurrence analysis. The 111 articles were selected by adopting the PRISMA framework followed by bibliometric analysis using VOSViewer. "Credibility in green advertising" has continued to bea lesser-knownarea and needs to be studied further. However, records of past twenty-fiveyears indicate slightincrease in publications. USA has publishedthe maximum numbers of articles till date in this research area followed by India and Chaina. It is observed that most of articleshave been published under the subject area of "Business, Management and Accounting". The study identifies the most cited articles and authors. Also,the results of the co-occurrence analysis revealed the four clusters and the consumer skepticism has been researched in all the four contexts. The study shall be of use to the academicians as it captures the research already done in this topic and identifies the trends prevalent in this area. The findings of the bibliometric review of literature suggests that regulation of green claims in advertising has not yet been studied in the Indian perspective. Also, not many research studies have been done in green branding in different product categories.

KEYWORDS: *Green Advertising, Credibility, CSR.*

INTRODUCTION

Our ecology has been deteriorating and being exploited at an alarming rate over the past few decades. Natural disasters like flash floods, earthquakes, tsunamis, and cyclones have been striking us more frequently because of our actions, which have not been in the best interest of preserving this planet. In 2019, "the global carbon emission was approximately 3,644 billion metric tons" (Statista, 2021). "Due to the ever-increasing carbon emission, a shift has been witnessed toward adopting more sustainable and environmentally responsible business practices by the industry"(L. C. Leonidou et al., 2011).

The rapid economic growth and industrialization have given rise to the current environmental challenges. Several legislations, acts, rules, and protocols for preventing and regulating environmental pollution have been developed over the past few decades. Organizations are being pushed to adopt an environmental approach in order tolower their negative influences on

environment by avoiding, reducing, or controlling the emission, or discharge of any type of pollutant or waste. "This is due to public awareness of environmental issues and an increased sense of consciousness about these issues which in turn shifts the way people live and what products they purchase"(Do Paço& Reis, 2012).

Today, a company's environmental impact has become and will continue to play a crucial role in how well it performs overall. A company may be doing a wonderful job of giving people top-notch, dependable goods, services, and jobs, but on the other side, it may be significantly contributing to environmental degradation through its operations.Given that consumers are increasingly becoming environmentally conscious, such companies are forced to rethink their processes to be more environment friendly. Not only the demands put by the consumers, but the legal requirements also are compelling organisations to be more environmentally conscious. "New sustainable business models are being developed and implemented to reduce the negative impact of businesses on the natural environment"(Hogevold et al., 2014).

Hence, "the term "greenmarketing" and "green products" have become a mantra for businesses to achieve the image of socially responsible organisations. Green Marketing refers to the development and promotion of products that are presumed to be environmentally safe (i.e., designed to minimize negative effects on the physical environment or to improve its quality).This term may also be used to describe efforts to produce, promote, package, and reclaim products in a manner that is sensitive or responsive to ecological concerns" (American Marketing Association). "The definition of a green product is used to describe offerings that protect or enhance the environment during their production and consumption. Ideally, green products can even offer potential benefits to the environment"(Bhardwaj et al., 2023). Elkington et al. (1990) outlines the general characteristics of a green product in their book,'The Green Consumer'. "To summarize: a green product should not a) endanger the health of people or animals; b) damage the environment at any stage of its life; c) consume a disproportionate amount of energy and other resources; d) cause unnecessary waste during its production, e) use or disposal; f) involve use of cruelty to animals; or use materials derived from threatened species or environments"(Elkington et al., 1990).

"Many companies attempt to capitalize on the public's interest in green issues by positioning themselves as environmentally responsible organizations"(Jay, 1990).Communicating the company's green initiatives and product and service environmental benefits can help build a green corporate image and competitive advantage. Marketers have employed green advertising effectively. Green advertising is "advertising that addresses the relationship between a product or service and the environment, promotes a green lifestyle, or presents a corporate image of environmental responsibility" (Banerjee et al., 1995a). Green ads make green claims virtually often. Genuine green companies can educate consumers about the legitimacy of green promises in advertising(Banerjee et al., 1995a).

"Green advertising must be legal and honest, and consistent with environmental regulations and policies regarding fair competition" (Pranee, 2010). However, "today, consumers are not only confused about green advertising but also distrustful of them"(Shrum et al., 1995). This suggests that the credibility of green advertising is questioned by many and needs to be studied. This study attempts to study the research that is done in the area of credibility of green advertising by employing the PRISMA framework and bibliometric analysis using VOSViewer. We not only attempt to analyse the literature quantitatively rather a literature review is also done with the aim to capture the evolution of definitions of green advertising, credibility and green washing. The study also identifies the reasons that adds to skepticism towards green advertising and the

strategies that can be adopted by the marketers to enhance the credibility of green advertising. Lastly, the study gives the conclusions of bibliometric analysis and the research gaps identified after reviewing the literature that may assist academicians in further research.

What Is Green Advertising?

"Green advertising first began in the 1970s when a recession led to sky-high oil prices and a focus on environmental issues" (Haytko& Matulich, 2008). Since then, many researchers have attempted to define green advertising. Nature and scope of green advertising has been evolving to incorporate the requirements posed by the changing face of environmental scenarios and competition. In its early stages, green advertising addressed the connection between a product or service and the environment. "Green environmental claims defined as information aiming to show how the advertiser and/or the brand/product advertised contribute to the improvement of the environment and/or the reduction of ecological degradation"(Polonsky et al., 1997), were the main contents of the green advertising. Later authors have included the content related to companies' green practices, a green lifestyle, a green corporate image of the company with in the purview of green advertising. The various definitions given by authors have been summarised in Table 1.

Menon and Menon (1997), discusses the concept of an enviropreneurial marketing strategy, which brings together corporate entrepreneurship and environmental concerns in formulating the sustainable marketing strategies. They identified three levels of the enviropreneurial (green) marketing namely strategic greening (bringing about a change in the entire corporate orientation), quasi-strategic greening (making significant changes in the processes and practices), and tactical greening (rethinking the functional activities and making them pro-environment e.g., green promotion)(Menon & Menon, 1997). Polonsky and Rosenberger (2001) added that the benefits tactical greening will be limited in log run if they are not supported by broader organisational greening. They posited that it is a holistic approach rather than a tactical opportunismthat enables a company to build an image of honest corporate involved in green initiatives(Polonsky & Rosenberger, 2001).

Banerjee et al. (1995) were amid the pioneers in elucidating the notion of advertising greenness. The authors delineate three criteria for green advertising: first, it should clearly or subtly establish a connection between the product or service and the ecological environment. Second, it supports environmental conservation and encourages a sustainable way of life and third, it portrays the advertiser as committed to environmental responsibility(Banerjee et al., 1995a). Non-green advertising, in contrast to green advertising, prioritizes attributes unrelated to ecological preservation (Gu et al., 2020).

Table 1 Evolution of Definition of Green Advertising

S.No.	Name of Author/s	Year	Definition
1	Holder	1991	"Advertising techniques used in large numbers to sell products that seem to meet the demands of green consumerism, i.e. the use of individual consumer preference to promote products and services that are less harmful to the environment"(Holder, 1991).
2	Banerjee et. al.	1995	"Commercial ("paid for") communication highlighting the company's environmentally friendly products, and/or services and attributes

			which can be placed in various channels, such as company websites, print media and television"(Banerjee et al., 1995b).
3	Polonsky and Rosenberger	2001	"Green advertising encompasses all communication activities by marketers aimed at promoting the environmental qualities of their products or corporate activities. This includes advertising that focuses on the physical environmental attributes of a product, as well as the firm's management of the environmental effects of production and other corporate activities" (Polonsky & Rosenberger, 2001)
4	Eren-Erdogmus et al.	2016	"Green advertising is one of the strategies that advertisers use to put their goods in the minds of customers as green products"(Eren-Erdogmus et al., 2016)
5	Kim et al.	2019	"Green advertising influences individual mindsets toward advertising,and the intention of consumers to be friendly to the environment"(Kim et al., 2019).
6	Matthes	2019	"Environmental advertising or green advertising can be defined as a message that tries to influence consumers' cognitions, attitudes, and behaviours by promoting green features in the product's whole lifespan, from production to distribution and disposal or recycling"(Matthes, 2019).

"Unfortunately, business' commitment to the environment has often been more evident in their communications than in their actual practices"(Grove et al., 1996). A realistic assessment of a company's entire activities may reveal that green marketing opportunities do not necessarily enhance long-term reputation unless they are rooted in authentic efforts to adopt sustainable practices(Polonsky & Rosenberger, 2001). Marketers seldom adopt a sustainable, long-term strategy for incorporating environmental problems into their actions, even when they are eager to do so. Companies that are simply interested in temporary gains may be less motivated to undertake the fundamental internal changes required to bring about significant environmental change. As a result, they will find it difficult to sustain a good strategic approach to green marketing over time and less likely to preserve customer confidence(Polonsky & Rosenberger, 2001).

Companies that are adopting green approach in the short run, face the challenge of achieving customer's loyalty and often are accused of green washing. Green washing is a practice adopted by the marketers to use green marketing as an eye wash and create a fake image of being environmentally friendly. These practices often try to cover up the processes that leads to environmental pollution. For instance, a company may be emitting hazardous gases during the production of its goods and at the same time may take up the green initiative of planting trees to cover up for the harm that they have done to the environment. These companies often employ green advertising to exaggerate their green initiatives. Green washing may prove to be of some

good to the company in the short run, but this comes with the cost of losing customer confidence. To enhance green credibility among potential clients, a company must demonstrate sustained commitment over an extended period to persuade individuals that it is not solely motivated by economic profit. Rather, a strong message should go to the customers that the company is really and truly honest when it comes to conserving and protecting the environment.

Gu, Liu and Chen (2022) widened the research to study the consumers behaviour post green consumption. Their study focused on licensing effect i.e. Consumer does not pursue green behaviour after viewing green ads. They found the licencing effect to exist in individuals with low environmental protection cognition. They suggested that rational appeals in the green advertisements can prevent the licencing effect(Gu et al., 2022). Studies on the licensing effect, as indicated by Monin and Miller (2001), propose that engaging in green consumption behaviour could result in reduced environmental actions after the purchase(Monin & Miller, 2001). On the contrary, research on consistency effect indicates that green consumption behaviour may lead to increased environmental behaviours following the purchase. Currently, there is uncertainty regarding the conditions under which licensing and consistency effects manifest. Consequently, this study aims to explore the circumstances in which licensing and consistency effects are more probable following the purchase of a product promoted as environmentally friendly, with a focus on examining environmental identity as a moderator.Through two experimental studies, the research reveals that green advertising can produce paradoxical results. Specifically, acquiring a product endorsed through a green advertisement may paradoxically diminish subsequent environmental concerns and intents. Notably, this phenomenon is observed only among individuals with a weak environmental identity(Meijers et al., 2019).

Rao and Wang (2017) examined the consequences that firms face when caught making deceptive claims and how it affects consumer behaviour. The texts provide examples of false claims made by firms and how regulatory bodies such as the Federal Trade Commission (FTC) work to safeguard consumers from deceit. The study finds "that revelation of firms' deceptive practices can have a significant impact on consumer demand"(Rao & Wang, 2017).

Previous research has addressed various issues and hypothesis related to green advertising and its credibility. However, there is a need to view the subject more comprehensively and connect the various outcomes. This study aims to analyse previous research through bibliometric analysis to discern statistical patterns and offer an overview of diverse views in the domain of green advertising credibility. The following research questions are addressed in this study:

RQ1: What are the trends in the research related to credibility of green advertising?

RQ2: which are the most influential authors, articles, journals and countries that have contributed to the field of credibility in green advertising?

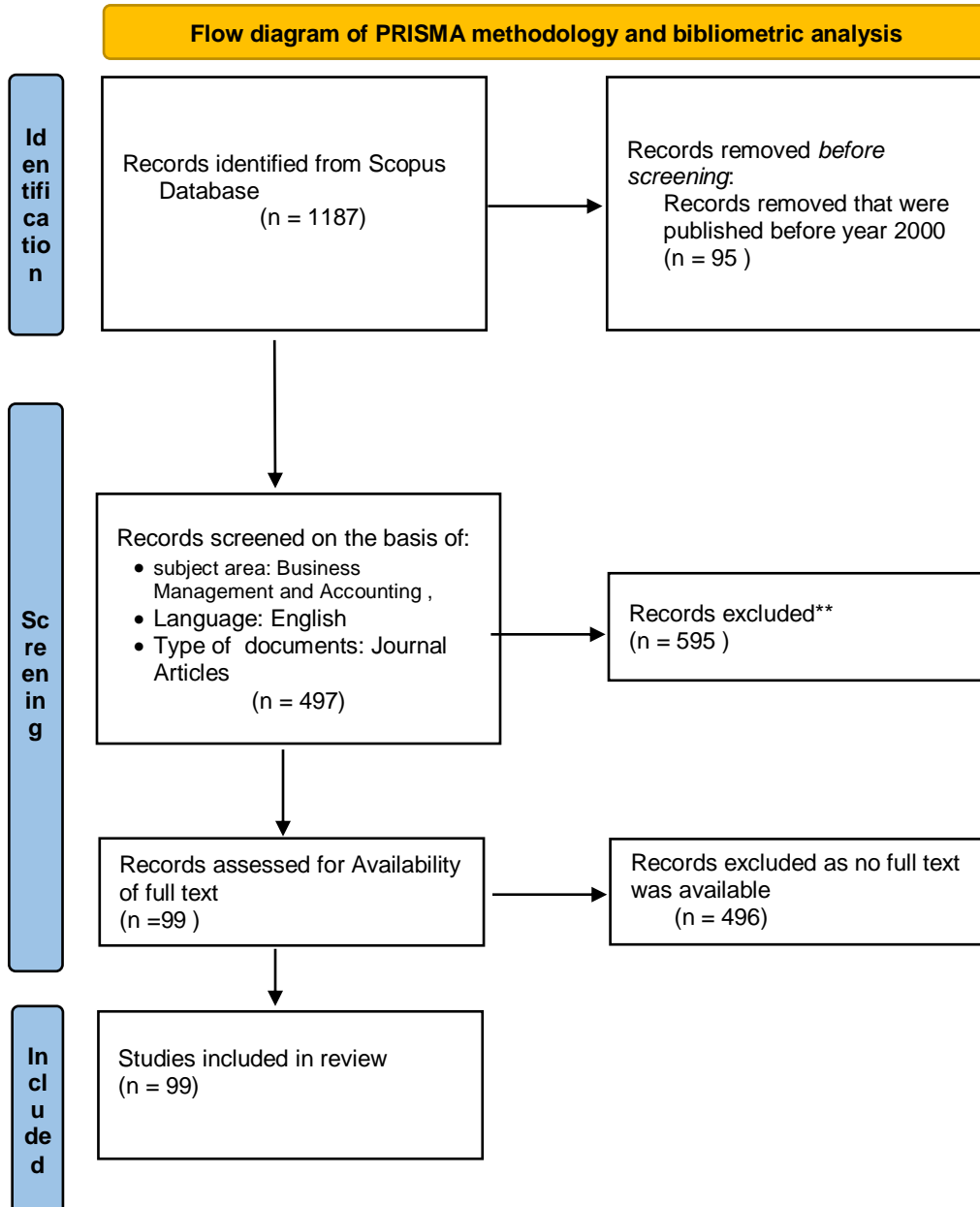RQ3: what are the possible thematic clusters in the area of credibility in green advertising?

RQ4: what strategies have been suggested by authors to increase the credibility of green advertising?

Research Methodology

The purpose of this study is to provide a summary of the previous and ongoing research that has been conducted in this area, as well as to identify any research gaps that exist in this area. Bibliometric analysis broadly comprises four stages-(1)data acquisition, (2) data pre-processing, (3) statistical calculation, and (4) application analysis. Combining a bibliometric analysis with a

literature review, this article aims tostudy, evaluate, and synthesize the present state of research on credibility in green advertising. This study employs the 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses' (PRISMA) for data acquisition and screening the articles that are to be included in the bibliometric analysis for creating knowledge maps. VOSviewer software is used for conducting various analysis such as co-citation, co-authorship analysis.

Flow diagram of PRISMA methodology and bibliometric analysis

Identification

Records identified from Scopus Database
(n = 1187)

Records removed *before screening*:
Records removed that were published before year 2000
(n = 95)

Screening

Records screened on the basis of:
- subject area: Business Management and Accounting ,
- Language: English
- Type of documents: Journal Articles

(n = 497)

Records excluded**
(n = 595)

Records assessed for Availability of full text
(n =99)

Records excluded as no full text was available
(n = 496)

Included

Studies included in review
(n = 99)

For the first stage data acquisition articles were extracted from Scopus database by applying the following query:

("Green Advertising" AND credibility) OR ("Green Advertising" AND skepticism) OR (greenwashing AND credibility) OR ("Green Advertising" AND trust) OR (credibility AND advertising).

This query resulted in 1187 articles as on 15th July 2024. On analysing the year wise data of publication, it was found that most of the research was done after 1999 and hence it was decided to apply the filter of 2000 to 2024 for retrieving the articles. We also limited our research to the area of business and management. Henceforth, a total of 612 search results were left. Out of these 612 articles, 3 articles were not available in English language and hence they were dropped for the study. Lastly only the Journal articles were included in the study which brought us to selecting 497 articles in all. These search results were extracted and analysed further.

The yearly publication of the articles in the field of credibility towards green advertising is depicted in Figure 1. A significant number of articles were published after 2016, before which only a few occasional attempts were made. In fact, only 12 articles were published before 2016 indicating that it is relatively a new area of research, and the increasing trend of the publication shows that the researchers are interested and contributing to this field. These observations intuitively suggest enormous scope of research in this field. Table 3 segments the articles retrieved from Scopus database according to the subject areas, under which articles have been published. It shows that the maximum number of articles are from Business, Management and Accounting, Economics, and social Sciences. Moreover, the publications in the area ofcredibility of green advertising are tied to multiple subject areas portraying it as multidisciplinary.

Figure 1Trend of publication year-wise

Documents by year
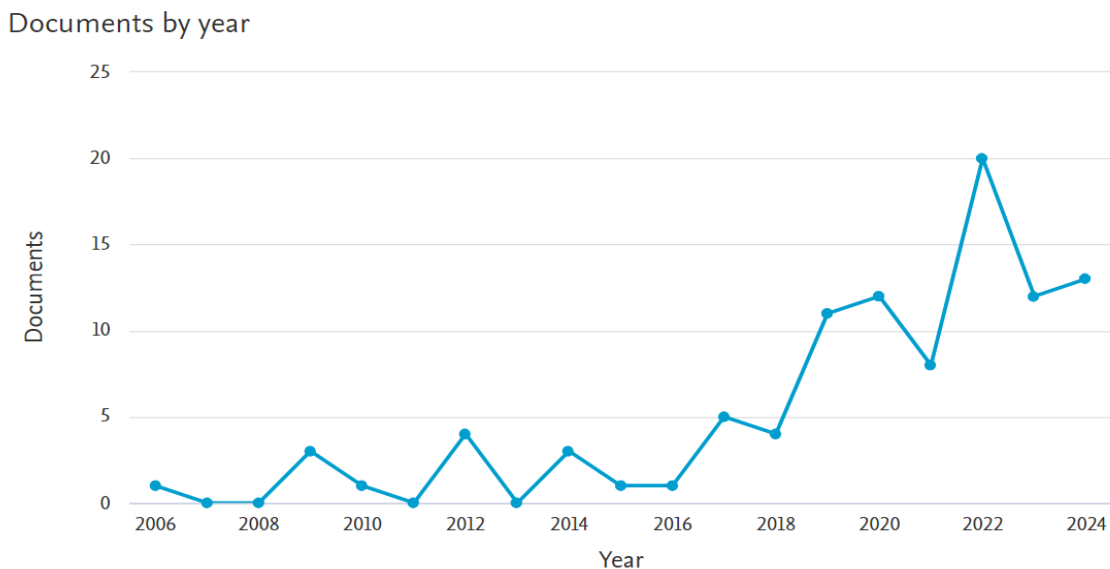
Table 3: Subject area wise publications on skepticism towards advertising

S.NO	SUBJECT AREA	Number of Publications
1	Business, Management and Accounting	99
2	Economics, Econometrics and Finance	31
3	Social Sciences	29
4	Psychology	12
5	Decision Sciences	7
6	Arts and Humanities	6
7	Environmental Science	6
8	Computer Science	3
9	Engineering	3
10	Energy	2

Table 4: Top Authors based on the number of citations for credibility towards green advertising

S.No.	Author	No. of citations	No. of Articles	Average Citation Per Article
1	Janssen, Loes	811	2	405.5
2	Schouten, Alexander P.	811	2	405.5
3	Foroudi, Pantea	105	2	52.5
4	Hussain, Shahzeb	105	2	52.5
5	Melewar, T.C.	105	2	52.5
6	Nguyen-Viet, Bang	58	4	14.5
7	Krouwer, Simone	42	2	21
8	Paulussen, Steve	42	2	21
9	Poels, Karolien	42	2	21
10	Martinčević, Ivana	17	2	8.5

Table 4 lists the leading authors who have contributed to studies on the credibility of green advertising. The top 10 writers ranked by citations are presented here, with Loes Janssen having the highest citation count. A citation analysis was performed to ascertain the most influential articles in the research domain. Of the 99 papers examined in the bibliometric review, over 60% (n = 60) have received more than five citations. The results shown in Table 5 indicate that the most cited publication is from the period 2006–2022.

Table 5: Citation analysis of documents.

S.No.	Authors	Article Title	Year of Publication	No. of Citations
1	Schouten A.P.; Janssen L.; Verspaget M.	Celebrity vs. Influencer endorsements in advertising: the role of identification, credibility, and Product-Endorser fit	2020	716
2	Mayzlin D.	Promotional chat on the internet	2006	420
3	Choi S.M.; Rifon N.J.	It Is a Match: The Impact of Congruence between Celebrity Image and Consumer Ideal Self on Endorsement Effectiveness	2012	412
4	Baek T.H.; Kim J.; Yu J.H.	The differential roles of brand credibility and brand prestige in consumer brand choice	2010	298
5	Shareef M.A.; Mukerji B.; Dwivedi Y.K.; Rana N.P.; Islam R.	Social media marketing: Comparative effect of advertisement sources	2019	295
6	Weismueller J.; Harrigan P.; Wang S.; Soutar G.N.	Influencer endorsements: How advertising disclosure and source credibility affect consumer purchase intention on social media	2020	201
7	Liu C.L.T.; Sinkovics R.R.; Pezderka N.; Haghirian P.	Determinants of Consumer Perceptions toward Mobile Advertising - A Comparison between Japan and Austria	2012	176
8	Schaefer S.D.; Terlutter R.; Diehl S.	Talking about CSR matters: employees' perception of and reaction to their company's CSR communication in four different CSR domains	2020	105
9	Janssen L.; Schouten A.P.; Croes E.A.J.	Influencer advertising on Instagram: product-influencer fit and number of followers affect advertising outcomes and influencer evaluations via credibility and identification	2022	97
10	Stubb C.; Nyström A.-G.; Colliander J.	Influencer marketing: The impact of disclosing sponsorship compensation justification on sponsored content effectiveness	2019	87

From Table 6, it can be observed that International Journal of Advertising, Cogent Business and Management and Journal of Business Researchhave published the maximum number of articles that are also amongst the most cited articles. Countries with highest number of published articles in the area of credibility towards green advertising are shown in Table 7 along with the number of citations. On analysis the bibliometric data of 99 articles extracted from Scopus it can be concluded that United States, United Kingdom and Germany have published maximum no. of articles followed by Netherlands, Viet Nam and Chaina. As compared to these countries not many articles have been published in India. Thus, it can be concluded that credibility of green advertising presents a great scope for research in India.

Table 6: Top journals based on highest number of articles on credibility towards advertising

S.No.	Journal Name	No. of Articles	No. of citations
1	International Journal of Advertising	6	1007
2	Cogent Business and Management	4	83
3	Journal of Business Research	4	127
4	Business Strategy and the Environment	3	61
5	Innovative Marketing	3	7

Table 7: Countries with highest number of articles on credibility towards advertising

| S.No.	Country	No. of citations	No. of Articles
1	United States	1399	15
2	United Kingdom	979	13
3	Germany	171	10
4	Netherlands	941	9
5	Viet Nam	70	7
6	China	64	6
7	Spain	63	5
8	Canada	318	4
9	Italy	58	4
10	Indonesia	16	4

Keyword Analysis

VOSViewer (version 1.6.20.1) was used for advanced data analysis after descriptive analysis. The software improved data visualization. Figure 3 shows keyword analysis results. The 27 most important keywords were chosen after counting at least three occurrences. Color-coded data reflect 4 word clusters studied together. The circle's size indicates its frequency. The most common words in each cluster were:

1. Cluster 1: Advertising Value, brand attitude, celebrity endorsement, credibility, entertainment, irritation, persuasion(cognitive to affective)

2. Cluster 2: Brand credibility, corporate social responsibility, green advertising, green marketing, green washing, sustainability, sustainable development. (Sustainability)

3. Cluster 3: influencer marketing, Instagram, number of followers, online advertising, purchase intention, social media influencer and source credibility (Source Credibility)

4. Cluster 4: Advertising, Branding, Facebook, marketing, social media(strategy)

The articles in the first cluster are related more to cognitive and affective components of consumer behaviour. Some studies are based on the "Advertising Value Model" given by Ducoffe in 1995. These studies tested the effect of credibility on attitude towards advertising along with other components such as entertainment, informativeness and irritation(Arora & Agarwal, 2019; Gaber et al., 2019; Sigurdsson et al., 2018). The studies tested theassociation between brand and celebrity image and its effect on celebrity credibility (Russell &Rasolofoarison, 2017). The second cluster pertainsmore to the stream of research related to sustainability, green advertising and green washing. Various studies have addressed the concerns related to credibility of green advertising and perceived deception on the part of the consumers(Carrete et al., n.d.; Elhajjar&Dekhili, 2015; Markham et al., 2014). Increasing number of misleading claims made in the advertising related to green practices of the company merely to greenwash, has led to consumer's skepticism of green(Farhat et al., 2021; C. N. Leonidou&Skarmeas, 2017; Lundin, 2021; Matthes &Wonneberger, 2014). The authors have studied the congruence effect of claimed environmental issues in the green advertising and product. The high congruence generated better ad attitude, sponsor credibility, message credibility and behavioural intentions (Shin & Ki, 2019). The third clusterseems to be related to source credibility. Marketers are replacing the traditional media with social media influencers(Janssen et al., 2022; Pick, 2021; Schouten et al., n.d.). Relationship between different demographic factors with credibility of influencer have been studied. The number of followers of the influencer and a product-influencer fit plays an important role in building the credibility of the influencer (Janssen et al., 2022). Signalling theory and attribution theory have been used to study the impact of influencer credibility on the effectiveness of the advertising. Cluster four relates to various strategies and channels that can be adopted for green marketing.Researchers assert that emphasizing environmental factors yields more effective advertising content when a brand advocates its sustainable practices(Sander et al., 2021). It is also posited that a natural association between a brand/ product and the celebrity can yield better green image of the company.

Figure 3: Bibliographic data. Map of co-occurrence analysis based on keywords
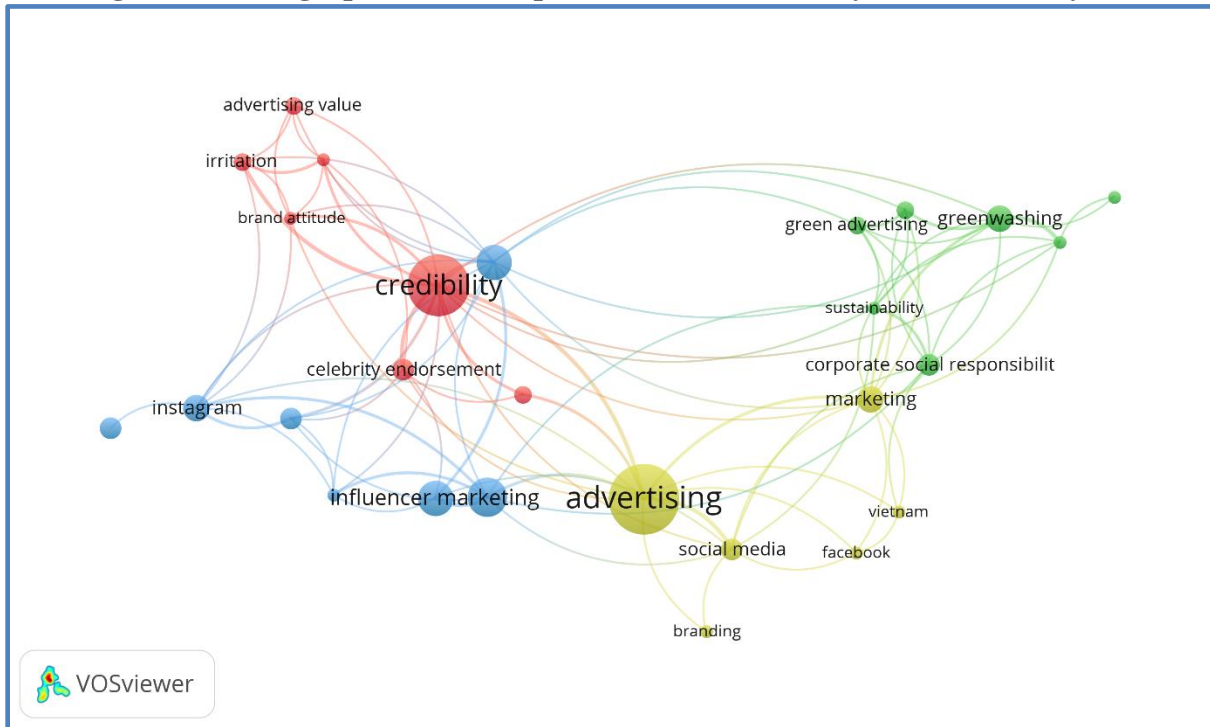
Figure 4: Bibliographic data. Map of co-citation analysis based on Authors
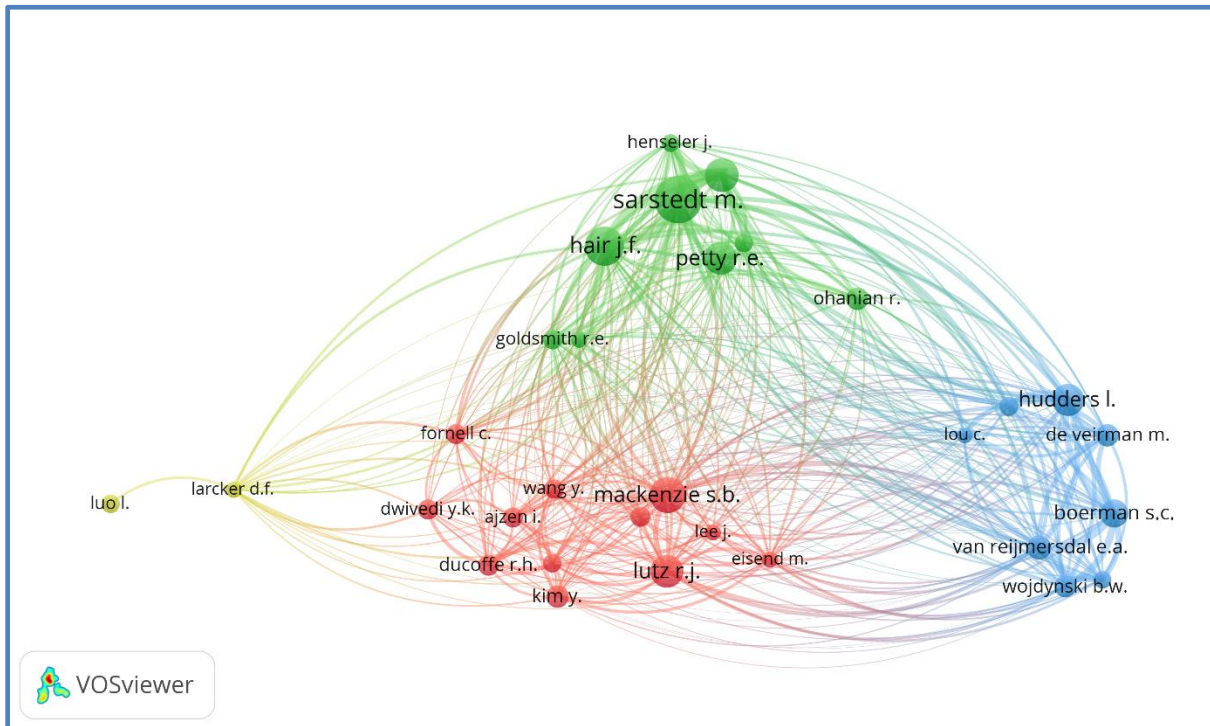
Also, it can be observed that other keywords such as skepticism, advertising content, repetition are not amongst the most prevalent keywords suggesting that there is lot of scope of future study. It can be concluded that credibility is an important construct that has been studied by various researchers in the context of behaviour, source, strategy and its linkage with sustainability.

"A co-citation analysis enables the researchers to understand the primary themes focused by a group of authors who have been frequently cited together"(Donthu et al., 2021). To further analyze the data, co-citation analysis was performed utilizing authors from the 99 publications under evaluation. Figure 4 shows four groupings of co-citations. Similar conclusions can be drawnin Figure 4, Table 5, and Table 6. Among these, Janssen, L., Schouten, P., Foroudi, P., Hussain, S., Melewar, T.C. have the most prolific work to their credit.

Credibility

Herbig and Milewicz (1995) suggested that "credibility is related to the extent to which, what is said matches with what is done"(Herbig &Milewicz, 1993). "Credibility has been defined as believability, trust, reliability, accuracy, fairness, objectivity, and dozens of other concepts and combination thereof" (Self, 1996). Keller (1998) defined corporations' credibility as the "extent to which consumers believe that a firm can design and deliver products and services that satisfy customers' needs and wants."(Keller, 1998)

"Credibility can be seen as an entire set of perceptions that receivers hold towards a source"(Newell & Goldsmith, 2001). "It is a concept which is related to the sender and refers to the degree to which an object is considered to be reliable source of information, products, services and other matters"(Keller & Aaker, 1998). "Someone or Something is Credible when what is promised is also realized and when mistakes are admitted" (Maathuis et al., 2004).

Credibility refers to "a person's perception of the truth of a piece of information" (Eisend, 2006). Hilligoss and Rieh (2007) proposed a comprehensive framework for evaluating credibility, encompassing "three levels of judgment: construct, heuristics, and interaction". The construct level focuses on how individuals form, theorise, or define credibility, representing the most abstract level that encompasses overarching notions influencing judgments. The heuristics level involves the application of general rules of thumb to assess credibility, offering a broad approach applicable across various situations rather than being specific to any one context. Lastly, the interaction level involves credibility judgments based on specific sources or cues (Hilligoss & Rieh, 2008).

Credibility has been defined in various contexts like in terms of characteristics of the message structure and content (i.e., the accuracy of advertisement claims), and media credibility (i.e., the integrity of the channel used to advertise) source credibility (i.e., the credibility of advertisers, sponsors and companies) and advertising credibility (i.e., the trustworthiness of advertising in general). A summary of the various contextual conceptualizations have been given in the Table 8 below.

Table 8
Summary of Contextualization of Credibility

Contextualization of Credibility	Definition	Dimensions
Ad- Claim credibility	The degree to which the consumer regards the assertions made about the brand in the advertisement to be true and believable.	1) Message structure 2) Message content 3) Message delivery
Source credibility	Evaluations by the audience regarding the credibility of a communicator. It is examined in two perspectives: 1) Credibility of endorsers/celebrities 2) Advertiser/Corporate Credibility	1) Expertise 2) Trustworthiness 3) Attractiveness (in case of celebrity credibility only)
Media credibility	The consumers' assessment of the general credibility of a channel's advertising content.	Dimensionality have not yet been explored.
Advertising Credibility	Consumer's perception of truthfulness and believability in general	Dimensionality have not yet been explored.

Green Washing and Skepticism towards Green Advertising

Greenwashing refers to the practice of making inflated claims about the green benefits of a product, service, or company to appeal to environmentally conscious consumers. This can involve using misleading language, imagery, or symbols to create the impression that a product is more environmentally friendly than itactuallyis. Greenwashing can damage consumers' confidence in green advertising and lead to adverse evaluations of ads and brands.

"Perceived greenwashing refers to consumers' ability to unmask greenwashing intentions in ads"(Chen & Chang, 2013). Leonidou et al. (2011) applied the Legitimacy theory to define green advertising as a "communication that is sent by the company to legitimise their green practices in the eyes of consumers and society"(Leonidou et al., 2011). They added that credible environmental claims will be considered valid by the receiver only when they are detailed, specific, truthful, clear and understandable (Leonidou et al., 2011).

"Companies that use superficial green advertisements present a vague, and sometimes deceptive reporting of the actual environmental challenges"(Leonidou et al., 2015). This can reduce perceived credibility in green advertising and cause consumer skepticism.

Greater analytical accuracy is needed for its detection because greenwashing can be difficult to identify, and consumers may be misled by false claims. The article suggests use of more

complicated and audiovisual stimuli, utilization ofbehaviouralinstruments, and examination of long-lasting effects of environmental messages to better detect greenwashing. (Matthes, 2019)

According to Delmas and Burbano, 'greenwashing' occurs when marketers use false statements in their advertisements to create an eco-friendly image for their brand, thereby persuading consumers to buy their products (Delmas & Burbano, 2011). Consumers fall prey to deceptive advertising and misleading claims when they can't easily verify these statements or lack information about (Rao & Wang, 2017).

As companies recognized the potential in the eco-friendly product market, they were enthusiastic about seizing opportunities within it. This prompted some to deliberately mislead consumers about their environmental performance or the ecological benefits of their products(Markham et al., 2014). This resulted in an unexpected trend of mistrust among the consumers. This mistrust was a byproduct of the unethical practices like false green claims, exaggerated language and ambiguous information(Zhu, 2012).

According to Shrivastava (2018), Skepticism towards "Green Advertising can be referred as consumer's tendency to towards the disbelief of claims in green advertising and can have dimensions like disbelief of environmental/green claims as well as mistrust of advertiser' motives"(Srivastava, 2018).

Skepticism surrounding green advertisements refers to the doubts and mistrust that consumers and other stakeholders may have about the environmental claims made by firms in their advertising. This skepticism arises due to concerns about the transparency, accuracy, and credibility of these claims, as well as the potential for firms to engage in greenwashing - the practice of making exaggerated or false environmental claims in order to appear more environmentally friendly than they actually are (Leonidou et al., 2011).

Strategies That Can Improve Credibility of Green Advertising

In this section the various strategies that a company can employto improve credibility of green advertising are enumerated.It has been observed that the believability of the green claims is improved when the companies get the green claims made by them in the advertising,certified through a third-partycertification body. "This certification body is impartial, have competence, deep knowledge, and expertise on the standards to which they certify"(Hunter, 2014).The companies can take the benefit of these third party by getting the expert consultation on the subject and also gain consumers' trust as these are independent bodies whose workings are audited regularly.

In his book, Ottman (2011)suggested five strategies for companies to improve credibility for a green marketing campaign. 1) by aligning actions with environmental values entities can demonstrate sincerity.Actions such as empowering and educating employees, taking proactive measures for environmental conservation, and visibly committing to environmental policies-helps the companies avoidreluctanceto promote positive environmental initiatives due to the fear of greenwashing backlash (Hunter, 2014). 2) Emphasizing transparency by providing consumers with readily accessible information to assesscompany's brand. 3) Avoid misleading practices by offering specific and prominent information, presenting complete details without exaggeration or allowing for conjectures. 4) As previously mentioned, actively pursue third-party certification. 5)Encourage responsible consumption, for instance, by educating consumers on proper product disposal or promoting resource-efficient consumption habits(Ottman, 2017).

In another study Verleye (2023), employing content analysis it is pointed that some ad attributes can improve or reduce credibility. It was observed that the use of a "local", "activist" and "climate leadership" storyline increases credibility. Emphasising on the organic product attributeslowers credibility(Verleye et al., 2023).

In 1993, Davis carefully expressed the importance of adopting an honest approach of sustainability to gain customer's trust. The author gave the strategies that must be incorporated by the companies to formulate credible advertising for their products while positioning themselves as "green". They discussed the three major areas of concerns related to green advertising namely, "i) the specificity of the environmental claims, ii) the level of emphasis given to the environmental claim and iii) the consumers' orientation towards the environmental appeals". He postulated that consumers can distinguish between the specific and vague environmental claims in advertising and on this basis often develop the attitude towards the advertiser and the product being advertised. In the study it was advised to the marketers to give specific, clear and complete information about the environmental claims if they wish to create and maintain the image of environmentally conscious company. They also suggested that tofoster a positive attitude towards their products, the marketers should first make certain that consumers' understand what core benefit of the product is and then the product's environmental benefits should be promoted(Davis, 1993).

Findings and Discussions

Based on the result of the bibliometric analysis we can conclude the following:

1. Credibility towards green advertising is relatively a new area for researchers as only 12 articles were published before 2016. However, since then, the number of published studies has been steadily rising, indicating an upward trend.

2. Maximum number of articles are published in the subject area of Business, Management and Accounting, Economics, and social Sciences. This indicates that marketers and business have acknowledged its importance and are taking steps to understand this area.

3. The most cited articles are related to credibility of source of advertising.

4. The results indicate that USA and UK have been the most active countries in publishing the articles in this area. However, the field remained unstudied in India.

5. The results of the keyword analysis generated four clusters. The first cluster included the studies related to perception and attitude towards green advertising. this can be seen as the cognitive and affective components of consumer behaviour towards green advertising. The second revolves around issues related to sustainability, green advertising and green washing. The third cluster has credibility of source, mainly celebrity credibility and corporate credibility. The fourth cluster has studies that address the various concerns related to strategies of green advertising, branding and online platforms for green advertising.

Suggested Research Gaps

Identifying the research gaps that require attention in subsequent studies is the primary goal of bibliometric analysis and literature reviews. The following research gaps are identified by the bibliometric analysis and the literature review:

1. The studies done in the first cluster tries to understand credibility as one of the components of attitude towards green advertising or its impact on behaviour. However, no study has

concentrated on providing a comprehensive conceptual foundation for credibility of green advertising and corresponding environmental behaviours.

2. Although a few studies have applied theories like signalling theory and attribution theory to understand the credibility of the source, no attempts has been made to apply other theories such as theory of planned behaviour that can explain the entire model of credibility of green advertising.

3. Future studies are needed to include more consumer characteristic variables like self-confidence, cynicism and personality traits that effect green advertising credibility perceptions and hence attitude towards green advertising.

4. There is a difference between how consumers perceive themselves to be considerate about the environment and how they act. Consumers are found not to be green in their consumption as compared to their perception of them being green (Perera et al., 2018).

5. Most of the studies have been done USA or UK. There is a lot of scope for studying consumer's green behaviour internationally and across cultures. In India the study could result in interesting findings due to its cultural and socio-economic diversity.

6. Mostly the studies have focused on a single demographic factor. A comprehensive study is required to include age, socioeconomic status, gender, location etc. to understand how consumers develop green environmental behaviours.

7. The advertisement characteristics such as copy, mood, situation characteristics still needs to be studies for formalising the strategies that could enhance the credibility of green advertising. Overall formulation and development of strategies to incredibility has been an under researched area and demands more sophisticated methods like experiment studies for making concrete strategies.

8. Lastly, authors need to focus their attention on the role of governments in various countries to reduce deception in green advertising. Past studies have observed that a more stringent policy related to deception can increase the credibility of green advertising and advertising in general many folds.

REFERENCES

1. Arora, T., & Agarwal, B. (2019). Empirical Study on Perceived Value and Attitude of Millennials Towards Social Media Advertising: A Structural Equation Modelling Approach. *Vision*, *23*(1), 56–69. https://doi.org/10.1177/0972262918821248

2. Banerjee, S., Gulas, C. S., & Iyer, E. (1995a). Shades of Green: A Multidimensional Analysis of Environmental Advertising. *Journal of Advertising*, *24*(2), 21–31. https://doi.org/10.1080/00913367.1995.10673473

3. Banerjee, S., Gulas, C. S., & Iyer, E. (1995b). Shades of Green: A Multidimensional Analysis of Environmental Advertising. *Journal of Advertising*, *24*(2), 21–31. https://doi.org/10.1080/00913367.1995.10673473

4. Bhardwaj, S., Nair, K., Tariq, M. U., Ahmad, A., & Chitnis, A. (2023). The State of Research in Green Marketing: A Bibliometric Review from 2005 to 2022. In *Sustainability (Switzerland)* (Vol. 15, Issue 4). MDPI. https://doi.org/10.3390/su15042988

5. Carrete, L., Arroyo, P., Management, A. A.-J. of P., & 2023, undefined. (n.d.). Should Green Products Be Advertised as Green? Exploring the Factors That Affect Ad Credibility. *Taylor & Francis*. Retrieved October 6, 2023, from https://www.tandfonline.com/doi/abs/10.1080/10496491.2022.2163032

6. Chen, Y. S., & Chang, C. H. (2013). Greenwash and Green Trust: The Mediation Effects of Green Consumer Confusion and Green Perceived Risk. *Journal of Business Ethics*, *114*(3), 489–500. https://doi.org/10.1007/s10551-012-1360-0

7. Davis, J. J. (n.d.). *Strategies for Environmental Advertising* (Vol. 10).

8. Delmas, M. A., & Burbano, V. C. (2011). *The Drivers of Greenwashing*.

9. Do Paço, A. M. F., & Reis, R. (2012). Factors affecting skepticism toward green advertising. *Journal of Advertising*, *41*(4), 147–155. https://doi.org/10.1080/00913367.2012.10672463

10. Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, *133*, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

11. Eisend, M. (2006). Source Credibility Dimensions in Marketing Communication-A Generalized Solution. In *Journal of Empirical Generalisations in Marketing*.

12. Elhajjar, S., &Dekhili, S. (2015). Could the greenbashing be a solution for the environmental advertising failures? *14th International Marketing Trends Congress, Paris*, *Ea 1347*.

13. Eren-Erdogmus, İ., Lak, H. S., & Çiçek, M. (2016). Attractive or Credible Celebrities: Who Endorses Green Products Better? *Procedia - Social and Behavioral Sciences*, *235*, 587–594. https://doi.org/10.1016/j.sbspro.2016.11.085

14. Farhat, K., Aslam, W., & de Luna, I. R. (2021). Yes, You Make Me Confused and Skeptic: Exploring Green Confusion and Green Advertisements Skepticism on Social Media. *Springer Proceedings in Business and Economics*. https://doi.org/10.1007/978-3-030-76520-0_33

15. Gaber, H. R., Wright, L. T., & Kooli, K. (2019). Consumer attitudes towards Instagram advertisements in Egypt: The role of the perceived advertising value and personalization. *Cogent Business and Management*, *6*(1). https://doi.org/10.1080/23311975.2019.1618431

16. Grove, S. J., Fisk, R. P., Pickett, G. M., &Kangun, N. (1996). Going green in the service sector. *European Journal of Marketing*, *30*(5), 56–66. https://doi.org/10.1108/03090569610118777

17. Gu, C., Liu, S., & Chen, S. (2022). Does Viewing Green Advertising Promote Sustainable Environmental Behavior? An Experimental Study of the Licensing Effect of Green Advertising. *Sustainability (Switzerland)*, *14*(22). https://doi.org/10.3390/su142215100

18. Gu, D., Gao, S., Wang, R., Jiang, J., & Xu, Y. (2020). The Negative Associations Between Materialism and Pro-Environmental Attitudes and Behaviors: Individual and Regional Evidence From China. *Environment and Behavior*, *52*(6), 611–638. https://doi.org/10.1177/0013916518811902

19. Haytko, D. L., & Matulich, E. (2008). *Green Advertising and Environmentally Responsible Consumer Behaviors: Linkages Examined*. https://www.researchgate.net/publication/237506901

20. Herbig, P., &Milewicz, J. (1993). The Relationship of Reputation and Credibility to Brand Success. In *Journal of Consumer Marketing* (Vol. 10, Issue 3).

21. Hilligoss, B., & Rieh, S. Y. (2008). Developing a unifying framework of credibility assessment: Construct, heuristics, and interaction in context. *Information Processing and Management*, *44*(4), 1467–1484. https://doi.org/10.1016/j.ipm.2007.10.001

22. Høgevold, N. M., Svensson, G., Wagner, B., Petzer, D. J., Klopper, H. B., Varela, J. C. S., Padin, C., & Ferro, C. (2014). Sustainable business models: Corporate reasons, economic effects, social boundaries, environmental actions and organizational challenges in sustainable business practices. *Baltic Journal of Management*, *9*(3), 357–380. https://doi.org/10.1108/BJM-09-2013-0147

23. Holder, J. (1991). Regulating Green Advertising in the Motor Car Industry. In *Journal of Law and Society* (Vol. 18, Issue 3).

24. Hunter, E. (2014). How to Fight Greenwashing: The Value of Third-Party Certification in Green Building. *SCS Global Services.*

25. Janssen, L., Schouten, A. P., & Croes, E. A. J. (2022). Influencer advertising on Instagram: product-influencer fit and number of followers affect advertising outcomes and influencer evaluations via credibility and identification. *International Journal of Advertising*, *41*(1), 101–127. https://doi.org/10.1080/02650487.2021.1994205

26. Jay, L. (1990). Green about the Tills. *Management Review; New York ,79*(6).

27. John Elkington, Joel Makower, & Julia Hailes. (1990). *The Green Consumer*. Penguin Publishing Group.

28. Keller, K. L., & Aaker, D. A. (1998). The Impact of Corporate Marketing on a Company's Brand Extensions. *Corporate Reputation Review*, *1*(4), 356–378. https://doi.org/10.1057/palgrave.crr.1540057

29. Kevin Lane Keller. (1998). *Strategic Brand Management Building, Measuring and Managing Brand Equity*. Prentice Hall.

30. Kim, W.-H., Malek, K., & Roberts, K. R. (2019). The effectiveness of green advertising in the convention industry: An application of a dual coding approach and the norm activation

model. *Journal of Hospitality and Tourism Management*, *39*, 185–192. https://doi.org/10.1016/j.jhtm.2019.04.007

31. Leonidou, C. N., &Skarmeas, D. (2017). ^1 CrossMark Gray Shades of Green: Causes and Consequences of Green Skepticism DionysisSkarmeas. *J Bus Ethics*, *144*, 401–416. https://doi.org/10.1

32. Leonidou, L. C., Leonidou, C. N., Hadjimarcou, J. S., &Lytovchenko, I. (2015). An Analysis of the Environmental Claims Made in International Industrial Advertisements. In *Developments in Marketing Science: Proceedings of the Academy of Marketing Science*. https://doi.org/10.1007/978-3-319-10951-0_45

33. Leonidou, L. C., Leonidou, C. N., Palihawadana, D., & Hultman, M. (2011). Evaluating the green advertising practices of international firms: A trend analysis. *Studies in Economics and Finance*, *28*(1), 6–33. https://doi.org/10.1108/02651331111107080

34. Lundin, L. (2021). *GREEN SKEPTICISM: How green intentions can lead to brown choices*. https://www.diva-portal.org/smash/record.jsf?pid=diva2:1568609

35. Maathuis, O., Rodenburg, J., &Sikkel, D. (2004). Credibility, Emotion or Reason? *Corporate Reputation Review*, *6*(4), 333–345. https://doi.org/10.1057/palgrave.crr.1540003

36. Markham, D., Khare, A., & Beckman, T. (2014). GREENWASHING: *Source: Journal of Environmental Assessment Policy and Management*, *16*(4), 1–16. https://doi.org/10.2307/enviassepolimana.16.4.02

37. Matthes, J. (2019). Uncharted Territory in Research on Environmental Advertising: Toward an Organizing Framework. *Journal of Advertising*, *48*(1), 91–101. https://doi.org/10.1080/00913367.2019.1579687

38. Matthes, J., &Wonneberger, A. (2014). The skeptical green consumer revisited: Testing the relationship between green consumerism and skepticism toward advertising. *Journal of Advertising*, *43*(2), 115–127. https://doi.org/10.1080/00913367.2013.834804

39. Meijers, M. H. C., Noordewier, M. K., Verlegh, P. W. J., Willems, W., & Smit, E. G. (2019). Paradoxical side effects of green advertising: how purchasing green products may instigate licensing effects for consumers with a weak environmental identity. *International Journal of Advertising*, *38*(8), 1202–1223. https://doi.org/10.1080/02650487.2019.1607450

40. Menon, A., & Menon, A. (1997). Enviropreneurial Marketing Strategy: The Emergence of Corporate Environmentalism as Market Strategy. *Journal of Marketing*, *61*(1), 51–67. https://doi.org/10.1177/002224299706100105

41. Monin, B., & Miller, D. T. (2001). Moral Credentials and the Expression of Prejudice. *Journal of Personality and Social Psychology*, *81*(1), 33–43. https://doi.org/10.1037/0022-3514.8I.I.33

42. Newell, S. J., & Goldsmith, R. E. (2001). The development of a scale to measure perceived corporate credibility. *Journal of Business Research*, *52*(3), 235–247. https://doi.org/10.1016/S0148-2963(99)00104-6

43. Ottman, J. A. (2017). *The New Rules of Green marketing*. Routledge. https://doi.org/10.4324/9781351278683

44. Perera, C., Auger, P., & Klein, J. (2018). Green Consumption Practices Among Young Environmentalists: A Practice Theory Perspective. *Journal of Business Ethics*, *152*(3), 843–864. https://doi.org/10.1007/s10551-016-3376-3

45. Pick, M. (2021). Psychological ownership in social media influencer marketing. *European Business Review*, *33*(1). https://doi.org/10.1108/EBR-08-2019-0165

46. Polonsky, M. J., Carlson, L., Grove, S., &Kangun, N. (1997). *International environmental marketing claims Real changes or simple posturing?*

47. Polonsky, M. J., & Rosenberger, P. J. (2001). *Reevaluating Green Marketing: A Strategic Approach*. www.ecomall.com/biz/

48. Rao, A., & Wang, E. (2017). Demand for "Healthy" Products: False Claims and FTC Regulation. *Journal of Marketing Research*, *54*(6), 968–989. https://doi.org/10.1509/jmr.15.0398

49. Russell, C. A., &Rasolofoarison, D. (2017). Uncovering the power of natural endorsements: a comparison with celebrity-endorsed advertising and product placements. *International Journal of Advertising*, *36*(5), 761–778. https://doi.org/10.1080/02650487.2017.1348033

50. Sander, F., Föhl, U., Walter, N., & Demmer, V. (2021). Green or social? An analysis of environmental and social sustainability advertising and its impact on brand personality, credibility and attitude. *Journal of Brand Management*, *28*(4), 429–445. https://doi.org/10.1057/S41262-021-00236-8

51. Schouten, A. P., Janssen, L., &Verspaget, M. (n.d.). *Celebrity vs. Influencer endorsements in advertising: the role of identification, credibility, and Product-Endorser fit.*

52. Shin, S., & Ki, E. J. (2019). The effects of congruency of environmental issue and product category and green reputation on consumer responses toward green advertising. *Management Decision*, *57*(3). https://doi.org/10.1108/MD-01-2017-0043

53. Shrum, L. J. ;, Mccarty, J. A. ;, & Lowrey, T. M. (1995). Buyer characteristics of the green consumer and their implications for advert. In *Journal of Advertising; Summer* (Vol. 24).

54. Sigurdsson, V., Menon, R. G. V., Hallgrímsson, A. G., Larsen, N. M., & Fagerstrøm, A. (2018). Factors Affecting Attitudes and Behavioral Intentions Toward In-app Mobile Advertisements. *Journal of Promotion Management*, *24*(5), 694–714. https://doi.org/10.1080/10496491.2018.1405523

55. Srivastava, V. (2018). Modelling antecedents of scepticism towards green advertising: evidence from India. *International Journal of Internet Marketing and Advertising*, *12*(2), 105. https://doi.org/10.1504/IJIMA.2018.090950

56. Verleye, G., De Ruyck, A., Vermeulen, W., &Schoenaers, I. (2023). Credibility of green advertising: six elements that drive credibility in green advertising. *Frontiers in Communication*, *8*. https://doi.org/10.3389/FCOMM.2023.1056020/FULL

57. Zhu, B. (2012). The Impact of Green Advertising on Consumer Purchase Intention of Green Products. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2182906