An Investigation into the Awareness of Green Advertising on Chinese Social Media Platforms, Focusing on Douyin Users as a Case Study

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Abstract. Over the past few years, there has been a noteworthy rise in consumer concern for safeguarding the environment, and various factors can be identified to elucidate the specific aspects that impact the environment. One of the key element that has turned out to being crucial is the use of social media which is used in different dimensions one of which includes the aspect of advertising. This study aims to examine the awareness of Green Advertising on Chinese social media, and will use Douyin, a popular social media platform in China, as a case study. The research will employ a survey, to gather data on the awareness and attitudes of Douyin users toward Green Advertising. In this study, the researcher created and circulated a structured, close-ended questionnaire and conducted with 111 participants. More than 58.6% of the gender were female, the other were male. When considering education level, most respondents focused on undergraduate education, making up 54.1% of the total. As for the industry, respondents were dispersed, with the majority working in other industries, representing 30.6% of the total. The findings of this study will provide insights into the awareness of Green Advertising on social media in China and help goverment and company advertisers better understand and target environmentally-conscious consumers. The results will also contribute to the academic literature on Green Advertising and provide a foundation for future research in this field.

Keywords: Green Advertising · Product-focused Green Advertising · Awareness · Chinese Social media · Douyin

1 Introduction

Over the past few decades, technology has emerged as an integral element that most manufacturers consider when carrying out their daily activities. Social media platforms is the most important online marketing process by sharing information/ideas and have been enhanced since people can communicate and exchange ideas without experiencing

challenges associated with distance and other aspects that existed before the emergence of the internet and technology [1]. Simultaneously, manufacturing companies have also realized an improvement in terms of their environmental marketing perspectives. Such is the case since the current innovation has allowed the companies to carry out the advertising of their products in a better way than it used to be in recent years [2]. Environmental or Green Advertising is employed by organizations as a marketing tactic. This practice originated in the 1970s during a recession marked by high oil prices and a heightened awareness of environmental concerns. In fact, Neff and Thompson (2007) noted that executives of packaged goods companies at the Food Marketing Institute Show concurred that eco-marketing would have a significant impact [3]. This study aims to investigate the level of awareness among users of the Chinese social media platform Douyin regarding Green Advertising, which merge the awareness elements of both pro-environmental and advetising. Search the characteristics of the respondents and their level of understanding towards Green Advertising, to comprehend the outlook and stance of social media users towards various forms of Green Advertising. And also give some useful suggestions to raise the recognition of various forms of Green Advertising.

1.1 Definition of Green Advertising

Green advertising, also known as environmental advertising or sustainable advertising, refers to a type of promotional message that appeals to consumers' environmental concerns and desires (Zinkhan and Carlson, 1995) [4]. It aims to increase awareness and understanding of these products and services' environmental benefits and encourage consumers to make more environmentally responsible purchasing decisions. Iyer and Banerjee initially put forward a set of criteria for evaluating a green advertising (Iyer, Banerjee, 1993) [5], they stated that for an advertisement to be considered "green", it must not only be an advertisement in its own right, but it must also stress one or all of the three themes of environmental protection, personal health, or protection of animal life.

1.2 Categories of Green Advertising

Product-focused Green Advertising: Product-focused green advertising is a type of green advertising that focuses on promoting environmentally-friendly products, such as organic food, renewable energy products, and eco-friendly consumer goods.

Environmental Issue-focused Green Advertising: This type of green advertising focuses on raising awareness of environmental issues, such as climate change, deforestation, and pollution.

Cause-related Green Advertising: This type of green advertising links a product or brand to a specific environmental cause, such as supporting a wildlife conservation organization or planting a tree for every product purchased.

Green Public Service Advertising (PSA): Public Service Advertisements (PSAs) are described as "promotions that tackle issues perceived as significant to the general public" (O'Keefe and Raid 1990) [6]. This pertains to a form of advertisement that advocates for ecologically mindful actions and mindsets, while also increasing consciousness of environmental concerns [7]. These advertisements are often produced by non-profit

organizations, government agencies, or other public service organizations, and are typically distributed through traditional and new media channels, such as television, radio, newspapers, and the internet.

1.3 Awareness of Green Advertising

Awareness refers to consciousness in general terms. In the context of marketing, it relates to the consumer's knowledge and recognition of a particular product. It refers to the consumer's level of conscious understanding of the product(Thomas, 2011) [8]. The majority of research in green marketing is driven by a cognitive and awareness perspective, and this is supported by studies that demonstrate a substantial impact of environmental awareness and knowledge on consumer attitudes towards the environment (Hines, Hungerford & Tomera, 1987; Stone, Barnes & Montgomery, 1995) [9].

1.4 Introduction of Douyin

Douyin, as depicted by Trend Insight (2021a), embodies the concept of social commerce platforms that incorporate e-commerce stores into its social media environment. It is also known as TikTok outside of China, is the most popular short-video sharing social media developed by Chinese tech company Bytedance [10]. Since its launch in September 2016, the platform has garnered immense popularity among its users. To determine the level of understanding among Chinese social media customers regarding green advertising, we use a sample group of randomly selected Douyin users for our study.

2 Related Work

Since social media is considered a form of new media, as it allows for the distribution and exchange of information and content through digital platforms. A survey conducted by the Chinese Academy of Social Sciences revealed that the primary source of environmental protection knowledge for the majority of Chinese people is through media channels. In promoting environmental protection, green advertising on social media can be instrumental in increasing awareness and encouraging eco-friendly behavior. Another study entitled "The Influence of Mass Media on College Students' Environmental Protection Ideas" used data to highlight the role and impact of environmental protection public service advertisements. According to the findings, more than half of the participants (54.3%) considered "positive public service advertisements" to be the most impactful, and they held favorable views towards specific exemplary environmental protection public service ads [11]. Several research studies have been carried out on green advertising on social media. Neha Dhruv Agarwal, V.V. Ravi Kumar Offered a comprehensive review of the studies conducted in the past 30 years on green advertising and pinpointed the areas where further research is required [12]. Another study has clarified the nature of Green Advertising and provides a way to understand the greenness of an advertisement and different types of Green Advertising (William E. Kilbourne, 1995) [13]. Some researchers (Clare D'Souza, Mehdi Taghian, 2005) [14] also found that the cognitive and affective responses of consumers with high and low levels of involvement

towards Green Advertising differed (Take 207 random Australian consumers as the sample). Certainly, as green marketing continues to advance, consumers around the world are becoming increasingly skeptical about the authenticity of Green Advertising. Therefore, there were researchers who studied green advertising practices by analyzing the content of Green Advertising on a global scale. Additionally, researchers have discovered that Green Advertising on social media can result in more favorable attitudes towards the environment. Social media provides a platform for people to share and spread Green Advertising, thereby increasing knowledge and involvement among a wider audience. A research study (D P Alamsyah, T Suhartini, Y Rahayu, 2018) [15] on green advertising found that awareness of Green Advertising can improve pro-environment behavior. Therefore, this study raises the question: What is the level of awareness regarding Green Advertising among customers on Chinese social media? Specifically, regarding Product-focused Green Advertising? We will maily analyze the awareness of Product-focused Green Advertising based on Douyin users.

3   Research Methods and Data Analysis

In the study, in order to examine Chinese social media users' awareness of green advertising, the researchers created and circulated a structured, close-ended questionnaire. The study was conducted with 111 participants, and a pre-test was carried out to ensure the questionnaire's suitability and relevance. The questionnaire comprised two sections, with the first section included 5 basic demographic questions for the respondents. The second section consisted of two main factors and had 10 questions divided among the two variables (As shown in Table 1). 5 questions were framed to know the awareness of Green Advertising and 5 questions to analyze the awareness of product-focused Green Advertising. The 5-point Likert scale was utilized in the questionaire, where 1 indicates "Strongly Disagree", 2 represents "Disagree", 3 signifies "Neutral", 4 stands for "Agree", and 5 signifies "Strongly Agree".

Hypothesis of the Study.

H1: Both Green Advertising and Product-focused Green Advertising are not well understood by Douyin users.

Respondents Demographic statistics.

Through the statistical analysis of the basic information of 111 effective subjects collected in this survey. According to the findings, the proportion of women was just over 58.6% of the gender, and the proportions are 25.2% and 21.6% respectively; in terms of education level, they mainly focus on undergraduate education, accounting for 54.1%; in terms of industry, the respondents are scattered, and most of them are in other

Table 1. Research variables and sources

Variables	Source
1.Green Advertising	Diana L.Haytko and Erika Matulich(2008)
2.Product-focused Green Advertising	Jane See Siou Zhen and ShaheenMansori(2012)

industries, accounting for 30.6%. This was followed by computers and students; 100 of the 111 subjects had used Douyin (As shown in Table 2).

The statistical analysis of the mean and standard deviation of ten questions on the scale reveals that the participants' performance on these questions was fairly uniform, with an average level that exceeded the median value of 3 (As shown in Table 3). The standard deviation of around 1 suggests that the questionnaires were reliably recovered

Table 2. Respondents Demographic statistics

Variables	Category	Frequency	(%)
Gender	Male	46	41.4
	Female	65	58.6
Age	Under 24	28	25.2
	25–29	15	13.5
	30–34	16	14.4
	35–39	24	21.6
	40–44	19	17.1
	45–49	5	4.5
	Above 50	4	3.6
Education	PhD	2	1.8
	Master	5	4.5
	Undergraduate	60	54.1
	Junior College	31	27.9
	High School/Technical School	8	7.2
	Junior High School	5	4.5
Industry	E-commerce	6	5.4
	Education	10	9
	Insurance	2	1.8
	Medical	7	6.3
	Technique	19	17.1
	Service	10	9
	Advertising	2	1.8
	Training	4	3.6
	Property	3	2.7
	Student	14	12.6
	Others	34	30.6
Have you ever used Douyin	Yes	100	90.1
	No	11	9.9

with low dispersion and relatively small error. In general, the participants exhibited a tendency to concur with the attitude conveyed in the questions.

Reliability Analysis.

Analysis of reliability level involves testing the consistency of observation results by different observers at different times and places. Cronbach's alpha is typically used to gauge the reliability of results, with values ranging from 0 to 1. A minimum acceptable range is considered to be 0.65–0.70, while 0.7–0.8 is considered good and 0.8–0.9 is considered very good. Furthermore, the study utilizes the corrected total correlation coefficient (CITC) to evaluate the internal consistency of each item with the overall scale. The CITC coefficient reveals the relationship between each measurement item and the overall scale. If an item's CITC value is below 0.4 and its internal consistency with the overall scale is low, the item should be removed, provided that its removal results in a significant increase in the Cronbach's alpha value. The paper employs SPSS.21 to determine if the empirical data for each latent variable meets the requirements of internal consistency by calculating the reliability coefficient for each dimension, CITC value, and reliability coefficient after item deletion (As shown in Table 4).

According to the results of the reliability analysis, the questionnaire utilized in the study comprises of 10 measurement items and two dimensions, with an overall Cronbach's Alpha value of 0.896. Both dimensions' Cronbach's Alpha coefficients are higher than the standard of 0.7, with the green advertising dimension measuring at 0.792 and the green product advertising dimension measuring at 0.848. Moreover, the Corrected Item Total Correlation (CITC) between the observed variables and their latent variables is greater than 0.5, suggesting that the questionnaire is well-constructed and reliable.

Table 3. Descriptive statistical analysis

Items	N	Average	Standard Deviation
Green Advetising1	111	3.11	1.123
Green Advetising2	111	3.44	1.015
Green Advetising3	111	3.32	1.001
Green Advetising4	111	3.43	0.88
Green Advetising5	111	3.68	0.822
Product-focused green advertising 1	111	2.92	0.936
Product-focused green advertising 2	111	3.29	0.938
Product-focused green advertising 3	111	3.22	0.888
Product-focused green advertising 4	111	3.14	0.923
Product-focused green advertising 5	111	3.26	0.912

Table 4. Reliability test of questionnaire.

Dimension	Items	Corrected Item Total Correlation	The Cronbach's Alpha value of the deleted item	Cronbach's Alpha value
Green Advertising	Green Advertising 1	0.37	0.826	0.792
	Green Advertising 2	0.632	0.732	
	Green Advertising 3	0.706	0.706	
	Green Advertising 4	0.634	0.735	
	Green Advertising 5	0.574	0.755	
Product-focused Green Advertising	Product-focused green advertising1	0.619	0.827	0.848
	Product-focused green advertising2	0.588	0.835	
	Product-focused green advertising3	0.758	0.79	
	Product-focused green advertisingt4	0.654	0.818	
	Product-focused green advertising5	0.671	0.813	

Overall Cronbach's Alpha: 0.896

Validity Analysis - Exploratory Factor Analysis.

To evaluate the structural validity of the scale and assess whether the measurement variables for each latent variable have a consistent and stable structure, exploratory factor analysis is utilized. This is a widely accepted technique for determining the validity of a scale, and for this study, all dimensions are tested using SPSS 21 software. Prior to conducting the factor analysis for validity assessment, it is crucial to confirm that the conditions for factor analysis are met. These conditions typically require a KMO value greater than 0.7 and a significance level of less than 0.05 for Bartlett's sphericity test. Meeting these conditions indicates that the observed variables have a strong correlation, making them suitable for factor analysis (As shown in Table 5).

The examination outcomes reveal that the KMO value of the survey data is 0.866, exceeding 0.70, suggesting the questionnaire is appropriate for factor analysis. The

Table 5. KMO and Bartlett's test for sphericity

KMO		0.866
Bartlett's test for sphericity	approximate chi-square	599.777
	df	45
	Sig.	0.000

results of the Bartlett sphericity test demonstrated an approximate chi-square value of 599.777 with a significance probability of 0.000 (P < 0.01). Thus, it was concluded that the scale was suitable for factor analysis, and its validity structure was deemed satisfactory.

4 Discussion and Conclusion

The concept of Green Advertising has gained significance in light of the increasing number of environmental concerns. It involves the promotion of products in a way that is environmentally conscious, often highlighting their alignment with eco-friendly values and behaviors. Simultaneously, the existence of social media within the current world has led to effective communication between different entities, and the use of social media has proven to be a significant element in the growth of many companies and organizations. Nevertheless, a limited number of individuals possess a distinct comprehension of Green Advertising. For this investigation, we have opted to use social media users in China, (Douyin) which happens to be the most widely used and prevalent platform, as our research participants, with the intention of ascertaining their familiarity with Green Advertising as well as Product-focused Green Advertising. The study revealed that a majority of the participants had utilized Douyin social media, irrespective of their industry. However, less than 50% of the respondents on Douyin were knowledgeable about Green Advertising and Product-focused Green Advertising. While some respondents had a neutral stance, the majority had a favorable outlook towards Green advertising and product-related green adverts.

Limitations and Future research.

With the increasing urgency of environmental concerns and the advancement of cultural norms, individuals tend to cultivate a heightened consciousness of environmental issues and become more invested in the planet's well-being. Consequently, online Green Advertising, particularly on social media platforms, is poised to play an increasingly significant role in this trend. Government and corporate who take the Green Advertising should focus more on the unique features of social media and develop effective strategies to increase awareness and knowledge about environmental issues. Simultaneously, they should provide precise and relevant information about Green Advertising. The collaborative efforts of the government, corporations, social media platforms, and consumers are directed toward promoting eco-friendly consumption practices and safeguarding the environment. Of course, the study has certain limitations. The study's sample was drawn from a specific industry and district, and the results may not apply to other industries.

Additionally, the recruitment of participants was primarily done through WeChat channel and recommendation from friends, which may have resulted in a biased sample. Future research should consider expanding the pool of participants from diverse industries and recruitment sources to address these limitations. And also, further research should be more expansive and consider more aspects by reviewing other literature and embracing the differences in terms of generations since differences between them can be used to understand how each of them uses and get influence from social media platforms and advertising in their daily lives.

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