

Impact of Green Advertising on Green Product Purchase Intention: Mediating Role of Consumer Trust

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Abstract

This study is to test the impacts of green advertising on social media and consumer green product purchase intentions focusing on the mediating role of consumer trust. This research employed an empirical study using online questionnaire to collect data from 427 Chinese consumers who aged over 18 years old and have a minimum high school education, are aware, and interested in buying green products using a snowball sampling method. The hypotheses were tested using structural equation modeling (SEM) procedure. The results showed that (1) acceptance of green advertising on social media had a significant positive impact on green product purchase intention; (2) acceptance of green advertising on social media had a significant positive impact on customer trust; (3) consumer trust had a significant positive impact on green product purchase intention, and (4) consumer trust had a partial mediating effect on the relationship between acceptance of green advertising on social media and green product purchase intention.

Keywords: Advertising, green products, purchase intention, social media, trust.

1. Introduction

Green consumption has become a focus for consumers and businesses to address environmental issues (Tariq et al., 2019). Currently, consumers take environmental considerations into their consumption decisions; this has resulted in changing the competitive landscape of the contemporary marketplace and prompting companies to think green (Grinstein & Nisan, 2009). In



the meantime, more companies are aware of the promising market for green products and promoting them (Gonçalves et al., 2016). To promote green products, the companies highlighted the importance of social media e.g., WeChat, Weibo, Twitter. Social media plays a considerable influence in shaping consumers' attitudes and purchase intentions towards green products (Zhang et al., 2018. Zhao et al., 2019). Green advertising is one of the important strategies of green social media marketing, where the green features and characteristics of green products are a persuasive selling point. Previous research indicated that the green selling points of products attract consumers to purchase these green products (Hartmann & Apaolaza-Ibáñez, 2009). Although companies posted green ads on social media trying to gain market share but consumers' reactions to the ads are complex.

For consumers, the idea of green consumption is hampered by a general lack of trust in green advertising. Green label certification is commonly used to promote green products. Advertisers used green labelling in an attempt to provide accurate, relevant, and important information about green products, which allows customers to make purchasing decisions by considering health and environmental factors. Green labels are an easy way to distinguish green products from ordinary products. They are essential for customers to understand the environmental context of green-labelled products or services, which allows them to differentiate green products and change their preferences for green-labelled products at this stage (Göçer & Sevil Oflaç, 2017). Therefore, green labelling is essential for the protection of environment and for green purchasing behavior (Gallastegui, 2002).

Although green advertising on social media promotes green purchasing behavior, consumers do not make green purchases immediately after receiving a green ad, and acceptance of green advertising varies from person to person. Signaling Theory is a popular theory for understanding the cognitive factors that consumers use to purchase green products (Atkinson & Rosenthal, 2014). Based on Signaling Theory, the main factor consumers consider when making rational decisions is the level of information and trust they have when choosing a green labelled product. Consumers will evaluate green products and services based on misleading or otherwise incomplete green information or advertising (Boulding & Kirmani, 1993). Signals are only effective if consumers



perceive them to be both useful and trustworthy (Boulding & Kirmani, 1993). Consumer trust in green products was undermined by early misleading environmental propaganda (Chen & Chang, 2013), commercial scandals (Choi et al., 2007) have been undermined. As a result, consumers fear being deceived by green advertising (Peattie & Crane, 2005). Therefore, on the one hand, consumers have to obtain effective information from green advertising to make decisions, and on the other hand, they are afraid of being deceived by green advertising because of some misleading propaganda in green advertising. Due to the ambivalent nature of trust in green advertising, it is significant to understand how consumers respond to green advertising. This study will attempt to discuss the impact of green advertising acceptance in social media marketing on consumers' green product purchase intention and consider the mediating effect of consumer trust to examine how green advertising influences consumers' green purchasing behavior.

2. Literature Review

2.1 Signaling Theory

Signaling Theory provides an explanatory mechanism for an identity seal or green label to confirm the credibility of an advertiser's environmental claim, thereby improving the source of the claim and the consumer's willingness to purchase the product (Erdem & Swait, 1998). Research in information economics mention (Spence, 1973) that individuals (buyers) in the marketplace are at a disadvantage compared to manufacturers (sellers) and thus that consumers, faced with information deficiencies, are bound to evaluate products and services based on incomplete and misleading information. Often, sellers have more, or better information and consumers inevitably rely on cues or signals to assess the quality of a product in this asymmetrical information environment (Kirmani & Rao, 2000).

Signal represents a piece of information that is controlled by the marketer and can be easily accessed by consumers outside of the product itself to infer the quality or value of the product (Bloom & Reve, 1990). Signals such as product warranties, green advertising and the like may be the behavior or strategy of the seller (Kirmani & Rao, 2000). Advertising is a signal because it minimizes risk and reduces consumer ignorance (Stigler, 1961), but consumers are less likely to use



signals as a repository of important information when they question their credibility (Boulding & Kirmani, 1993). The form of green labeling or certification allows consumers to have some confidence in the credibility of these claims and helps build consumer trust (Hansen & Kull, 1994). Ultimately, consumers rely on signals for internal cognition and finally decide whether to purchase a green product or service in this asymmetrical information environment.

2.2 Green Advertising on social media and Green Product Purchase Intention

Green advertising refers to advertisements that typically emphasize the overall environmental benefits associated with the purchase of a specific product, such as reducing greenhouse gas emissions, reducing water pollution, and promoting biological interpretation (Nyilasy et al., 2014). Green advertising acceptance in this study refers to the extent to which consumers accept green advertising in social media. When consumers are exposed to green ads on social media, their feelings and judgments are formed, which will influence consumers' attitudes toward the green ads themselves and their beliefs about green brands or green products (Bailey, Mishra, & Tiamiyu, 2016). Green advertising can enhance consumers' understanding of green products, promote green products, and increase their willingness to buy green products. According to Irwin and Naylor (2009), when consumers form product considerations by excluding alternatives, they place more emphasis on green attributes. When consumers are aware of the green attributes of products from green advertisements, they are more likely to purchase these products (Hartmann & Apaolaza-Ibáñez, 2013). Previous research has shown that green advertising aims to influence consumers' purchasing behavior by encouraging them to purchase products with green labels and making them aware of the positive impact of their purchases on themselves and the environment (Rahbar & Wahid, 2011). Therefore, the higher consumers' acceptance of green advertising, the higher their understanding of green products is likely to be and the higher their willingness to purchase green products (Chang et al., 2015). Therefore, we propose the following hypothesis:

H1: Acceptance of green advertising positively affects consumers' green products purchase intention.



2.3 Green Advertising on Social Media and Consumer Trust

Trust is willingness to rely on another party based on the expectation of the other party's ability, reliability, and kindness (Ganesan 1994). Trust consists of three beliefs: integrity, kindness, and competence (Schurr & Ozanne, 1985). Rousseau, Sitkin, Burt and Camerer (1998) noted that trust was a psychological state with an intention to accept vulnerability based on the positive expectation of the behavior or intention of another party, and that trust was a direct driving force of consumers' purchase intention. In general, companies build trust in green products through green advertising in social media, which are the primary source of information that influences consumers' green products purchase intention. When individuals are more receptive to green advertising in social media, they are more likely to trust green products. If a company can provide evidence of a green product in its green advertising in social media, such as a green label, then it will have more credibility with consumers than it claims. Previous studies have shown that green labels certified by third parties are reliable, especially those certified by public institutions (Noblet & Teisl, 2015). Some companies use green labels to distinguish their green products from ordinary products, which can lead to a higher level of consumer trust in these green products. Therefore, the following hypotheses are proposed:

H₂: Acceptance of green advertising positively affects consumers' trust towards green products.

2.4 Consumer Trust and Green Product Purchase Intention

Chen (2010) indicated green product purchase intention expressed as “the likelihood that a consumer would buy a particular product resulting from his or her environmental needs.” Everard and Galletta (2005) presented the positive relation of trust in online stores and consumers' intention to buy from an online store. Lu et al. (2010) indicated a positive relation of customer trust and buying intention. Lee and Lii (2012) showed that perceived fairness would lead to building strong consumer trust that would result in higher purchase intention. Gil and Jacob (2018) revealed that green trust can promote consumers' green product purchase intentions. Thus, consumer trust is a determinant factor of purchase intention (van der Heijden et al., 2003). Hence, the following hypothesis is proposed:

H3: Consumer trust has a positive impact on green product purchase intention.

Based on the literature review and hypotheses, this research framework is illustrated in Figure. 1.

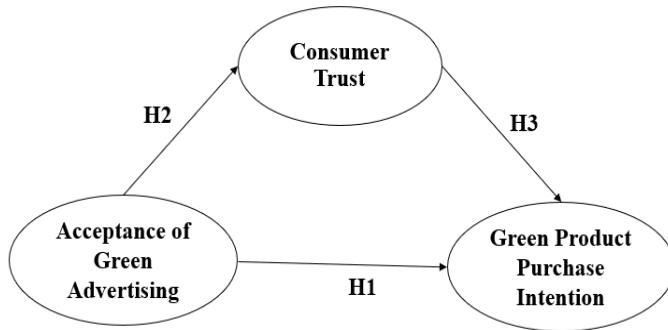


Figure 1 Conceptual Framework

3. Methodology

3.1 Population and Sampling

The population comprises individuals in Zhengzhou City, Henan province, China, who know and are interested in buying green products, aged over 18 years old and have a minimum high school education. The reason is that individuals over this age are well known for purchasing products and are also able to make their decision to choose the right item among the many options available. Individuals with at least a high school education are expected to know the importance of using environmentally oriented products. The sample size was calculated using Cochran's formula at a confidence level and error term of 95% and 5 %, respectively (Cochran, 1977). The sample size was 385 after calculating.

3.2 Data Collection

The research is quantitative research using a web-based online survey to collect the data. The questionnaire was developed based on the comprehensive literature review. Since the target respondents in this study belong to relatively hard-to-reach populations in Zhengzhou, after a pilot test with 30 respondents, the snowball sampling technique was used to collect the data. Finally, 456 questionnaires were returned but after eliminating incomplete data, 427 valid questionnaires were obtained.



3.3 Measurement Development

The questionnaire was divided into two parts. The first part of the questionnaire contains demographic information, including questions such as: gender, age, education, occupation, and monthly income. The second part contained 12 items designed to measure three constructs including acceptance of green advertising, consumer trust and green product purchase intention. Each construct was rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The items in the questionnaire were developed by adapting measures validated by other researchers or by converting the definitions of the constructs into the form of a questionnaire. There are four items used to measure the acceptance of green advertising and they are adapted from do Paço et al. (2012). There are four items used to measure consumer trust and they are adapted from Thøgersen et al. (2015), Nuttavuthisit and Thøgersen (2017). There are four items used to measure the green product purchase intention and they are adapted from Sun et al. (2017) and Wang et al. (2018).

4. Research Findings

4.1 Descriptive Analysis

Majority of the respondents were females, more than 70 percent were aged between 18 and 40 years old, single, with bachelor's degrees or higher, and have relatively low incomes.

4.2 Reliability and Validity Analyses

Cronbach's alpha was used to measure reliability of the measures. Hair et al. (2013) indicated the value of Cronbach's alpha coefficient of 0.7 was taken as the threshold level to ensure the stability and consistency of the instruments. According to Table 1, the Cronbach's alpha value of all constructs was above 0.7. Hence, the reliability of the construct is established.

Validity focuses on identifying, extent to which the research concept is correctly represented by the measures (Hair et al., 2013). Construct validity was measured by utilizing convergent validity and discriminant validity. Convergent validity was assessed with Composite Reliability (CR), Factor Loadings and Average Variance Extracted (AVE). If the value of CR reached 0.7 or above, and the value of factor loadings and AVE both reached 0.5 or above, the measurement model has good convergence validity (Hair et al., 2013). As per Table 1, all indicators



met the standard, indicating that the measurement model in this study had good convergent validity. To determine discriminant validity, the square root of AVE of each construct was compared to the squared correlations of other constructs. From Table 2, it is evident that square root of AVE value of each construct is greater than the squared correlations of this construct to any other construct. Hence, the discriminant validity is established (Hair et al., 2013).

Table 1 Results of Validity and Reliability Analysis

Factors	Indicators	Factor Loadings	AVE	CR	Cronbach's Alpha
Acceptance of Green Advertising (AGA)	AGA1	0.815	0.646	0.879	0.872
	AGA2	0.717			
	AGA3	0.781			
	AGA4	0.892			
Consumer Trust (CT)	CT1	0.78	0.618	0.866	0.851
	CT2	0.748			
	CT3	0.815			
	CT4	0.801			
Green Product Purchase Intention (GPI)	GPI1	0.725	0.624	0.868	0.867
	GPI2	0.87			
	GPI3	0.819			
	GPI4	0.737			

Table 2 Discriminant Validity of Scale Test

Construct	AGA	CT	GPI
AGA	0.804		
CT	0.37	0.786	
GPI	0.57	0.38	0.790

4.3 Measurement Model Analysis

If the implied covariance structure of the model is similar to that of the sample data, as implied by the acceptable value of the goodness of fit index (GFI), the model is considered appropriate (Cheung & Rensvold, 2002). We firstly verified and evaluated the measurement model and then analyzed and fitted the structural model. According to the data in Table 3, all the required values of fit indexes were within the recommended range. The value of χ^2/df in the current study measurement model was 2.801, which is less than 3. The value of goodness of fit index (GFI) should be higher than 0.90, and in this case its value was 0.935, which was within the range of the recommended value. RMSEA is 0.047, which is smaller than the minimum standard of 0.05. The



value of AGFI was 0.836, which was within the recommended range. CFI is 0.941 and NFI is 0.920, both of which are greater than the minimum standard of 0.9 (Kline,2011). Therefore, all the resultant values were significant and above the acceptable range, and the model was a good fit.

Table 3 Fit Indices of Measurement and structural models

Fit indices	χ^2 /df	GFI	AGFI	CFI	NFI	RMSEA
Recommended	<3	>0.9	>0.8	>0.9	>0.9	<0.05
Structural Model	2.801	0.935	0.836	0.941	0.920	0.047

4.4 Results of Hypotheses Testing

Path coefficients demonstrate relationships among factors within the research model as shown in Table 4. All relationships are statistically significant in the final structural model. Concerning H₁, a significant positive relationship was observed between acceptance of green advertising on social media and green product purchase intention ($\beta= 0.648$, $p<0.001$), thus, supporting H₁. Similarly, a significant positive relationship existed between acceptance of green advertising and consumer trust ($\beta=0.604$, $p<0.001$), Hence, H₂ was supported. In addition, consumer trust was significantly correlated with green product purchase intention ($\beta=0.221$, $p<0.01$), which was consistent with the theoretical expectations and provides preliminary support H₃.

Table 4. Test Results of Research Hypothesis

Hypothesis	Path	Path Coefficient (β)	T value	P	Results
H1	AGA→GPI	0.648	9.60	***	Supported
H2	AGA→CT	0.604	9.56	***	Supported
H3	CT→GPI	0.221	6.18	***	Supported

*p <.05; **p <.01; ***p <.001

4.5 Mediation Analysis

Hayes' process was used to test the mediating effect of consumer trust, and bootstrap method was used to test the significance of the mediating effect. Under the 95% bias-corrected bootstrapping confidence interval, 5,000 samples were used to determine whether there was a mediating effect. The mediating effect was formed if there was no zero between the upper and lower limits of the



bias-corrected confidence interval (Hayes, 2009). The mediating effect of consumer trust is presented in Table 5. The results revealed that consumer trust plays a significant partially mediating role in the impact of consumer trust on consumer acceptance of green advertising on social media on consumer green product purchase intention, with 95% confidence interval of (0.151, 0.327), excluding zero.

Table 5. Test Results of Mediating Effect

Paths	Effect	Bootstrapping 95% Confidence Interval		Effect Proportion
		Lower	Upper	
Mediating effect	0.33	0.151	0.327	41.77%
Direct effect	0.46	0.326	0.564	58.23%
Total effect	0.79	0.528	0.761	

5. Conclusions

5.1 Discussion

This study was to examine the impacts of green advertising on social media and consumer green product purchase intentions, meanwhile, we also examine the mediating role of consumer trust in the relationship between acceptance of green advertising and green product purchase intentions. The results show that the acceptance of green ads on social media has a positive impact on green products purchase intention, as green advertising highlights that green products can be beneficial to the environment. Furthermore, although many previous studies have mentioned that consumers are skeptical of green advertising in social media, this study demonstrates that consumers' acceptance of green advertising on social media has a significant positive impact on consumer trust. The results are consistent with the findings of Nuttavuthisit and Thøgersen (2017). Green advertising plays an important role in promoting green products. Consumers who are influenced by green advertising are more likely to be aware of environmental issues and believe that their behavior influences the environment. Green advertising on social media contains content about where to buy green products and how to differentiate these products from regular products. Thus, the acceptance of green advertising on social media is positively correlated with consumer trust. Finally, this study



also confirms that consumer trust is significantly and positively related to green purchase intentions, and the results are consistent with the findings of Nuttavuthisit and Thøgersen (2017). The current consumer understanding of green products is still narrow. When confronted with actual choices in stores, consumers may be less willing to make green purchases if they lack trust in the green products. This distrust may be directed at merchants or, more controversially, may be directed at the systematic certification and labeling of certified green products (Castka & Corbett, 2014). Some consumers are skeptical of products with green labels because they see no benefit in these products and believe that it is only an environmentally friendly product that the company claims. In this case, we can imagine that consumers' willingness to buy green products may increase when they gain a higher level of trust and a better understanding of green labels and green products, especially their advantages in terms of environmental protection.

5.2 Implications

First, this study confirms that acceptance of green advertising on social media positively affects consumers' green products purchase intention. This finding could motivate companies to appropriately focus their green campaigns and initiatives on consumers. For example, companies can take steps to target green advertising to specific consumers on social media to develop and educate consumers about green labels and green products so that they can clearly see the unique benefits of green products and further increase consumer understanding and acceptance of green advertising on social media.

Furthermore, the acceptance of green advertising on social media positively affects consumer trust, which means that companies should provide consumers with more educational knowledge about green labels and green products in their green advertising. Companies should pay more attention to educating their target customers through social media green advertising and communicate more specific rather than general messages, such as how to distinguish green labels and the knowledge and skills to buy green products. Companies should understand that consumers appreciate genuine corporate behavior. Companies should communicate effectively with their customers, trying to demonstrate and convince them that the company's sincere efforts in sustainability. To increase consumer trust, the company should promote a positive image of green



products to consumers. More importantly, companies should disclose all information necessary to support the environmental benefits and performance of their green products in existing resources (e.g., product packaging, promotional materials) or other resources (e.g., environmental and corporate social media accounts) to achieve a truly green positioning for their products.

Finally, the role of government is also critical to further promote the development of green products. First, to encourage the development of green products, the government should develop more relevant policies and regulations. For example, the government should provide companies with easier access to information about how to certify green labels. As long as companies meet the certification criteria, they can effectively complete the certification. In addition, the government can provide more subsidies for companies to encourage them to develop green products and give appropriate incentives to consumers to encourage them to buy green products. Moreover, the government should use public platforms to promote a positive image of green products to potential consumers. The government can emphasize the benefits of green products for the environment and individuals to encourage consumers' desire to purchase green products. Meanwhile, the government could also consider introducing appropriate, straightforward, and consistent green labels so that consumers have a clear reference point for the environmental characteristics of each green product. In this way, consumers may begin to alleviate some of their doubts about green products and trust them.

5.3 Limitations and Recommendations for Further Research

This study has several limitations. Firstly, this study lacks a specific qualification of green product categories. Future research could investigate specific green products and compare consumer purchase intentions among different green products. Secondly, this study focuses only on green products purchase intention; further research could investigate the actual purchasing behavior of green products to gain more insight into trends in actual purchasing decisions. Lastly, this research samples are all from Henan Province, China. For future studies, data can be collected in a broader scope and empirical analysis can be conducted with a larger sample to further enhance its generalizability.



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