
Discussion of Correlations between Green Advertising Design and Purchase Intention based on Consumers' Environmental Attitude

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Abstract

Environmental problems have been the globally emphasized issue in past years, and green movement has been regarded as an important social movement. The production and consumption model therefore should take the future development of environment into account. In face of humans' environmental problems, it is essential to establish green marketing. It is generally considered that advertisement could effectively highlight product attributes and attract consumers' interests to have consumers agree with the profits appealed to advertisement. To benefit the sustainable development of the entire environment, consumers' attitudes towards and behaviors on green products should be comprehended to have consumers agree with the appeal to advertisement and achieve the marketing objective. Unintended audience in Taiwan, as the research objects, is randomly sampled in northern, central, and southern areas. Total 360 copies of questionnaire are distributed, and 241 valid copies are retrieved, with the retrieval rate 67%. The research results show 1. positive and significant effects of green advertising design on purchase intention, 2. positive and remarkable effects of environmental attitude on green advertising design, and 3. positive effects of environmental attitude on purchase intention. Suggestions are further proposed according to the results, expecting to enhance the marketing performance of green advertising design, allow consumers agreeing with the profits appealed to advertisement, and benefit the sustainable development of the entire environment.

Keywords: green advertising design, environmental attitude, purchase intention, consumer behavior

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INTRODUCTION

Humans and natural environment are mutually dependent. In consideration of the urgency of natural resource exhaustion, pollution caused by humans, and overpopulation, a lot of researchers and government officials appeal people to avoid harmful effects on the environment and encourage the environment-friendly behaviors. It is not enough to rely on the development of ecologically efficient technology for the sustainable development of environment, but people's consumption model should be changed to reduce the overuse of natural resources by reducing consumption standards. In this case, production and consumption models should take the future development of environment into account. In face of humans' environmental problems, it is necessary to establish green marketing, in which both researchers and businesses concern about continuous growth when the marketing activities are affected by environmental problems. Green marketing is the strategy aiming at consumers with environmental awareness as well as the

management process for profits and sustained-yield management.

Environmental problems have become a globally emphasized issue in past years, and green movement has been regarded as a primary social movement. Nevertheless, there is still a gap between consumers' green consumption attitudes and behaviors. Under the rapid change in consumer behaviors, the product manufacturing model has changed from market orientation to consumer orientation. Consumers' real psychological needs are largely emphasized. In the era with abundant information, a business should establish the product differentiation with advertisement appeal and product attributes to implant product image in consumers' mind. It is generally considered that advertisement could effectively highlight product attributes, attract consumers' interests, and have consumers agree with the profits appealed to advertisement. In order to benefit the sustainable development of the entire environment, consumers'

attitudes and behaviors on the consumption of green products should be comprehended. Especially, green advertising design highlights product attributes with green characters that it is worth of noticing to achieve the marketing objective by effectively having consumers agree with the advertisement appeal. Empirical research on the correlations among green advertising design, consumers' environmental attitudes, and purchase intention is preceded in this study, expecting to enhance the marketing performance of green advertising design, allow consumers agreeing with the profits appealed to advertisement, and benefit the sustainable development of entire environment.

LITERATURE REVIEW

Green Advertising Design

Chen et al. (2015) pointed out the urgent requirement for environmental protection under the serious environmental trend that designers should spend large amount of spirit and intelligence to achieve environmental requirements and conform to consumer needs. Green advertisement should present more than one of the following elements, including 1. definitely or secretly solving the relationship between products (services) and biophysical environment, 2. being able to promote green lifestyles, regardless the emphasis on product (services), and 3. being able to propose the social responsibility image of environmental protection. Alnawas and Altarifi (2016) considered that green advertisement should stress on consumers and consumption, rather than manufacturers and production. Media presented critical functions on the advertisement of product sales and market marketing. Different advertisement media would create distinct marketing and communication results for consumers. In general, advertisement media contained magazine (newspaper), TV, broadcast, network, and mobile communications (Kotler and Keller 2015). Modern advertisement seldom directly spoke out the sales information. With the transfer of creativity, advertisement was like "image-text codes", and consumers' reception of advertisement could be the process to return image-text codes to brand information. Molina - Besch and Pålsson (2016) indicated that the same selling point could have different cut-in angles, while the same cut-in angle could have distinct presentation. The sum of such parts allowed some image-text codes being explicit, while others being astonishing. It was the difference in cognition experience (Geiger et al. 2015).

Referring to Chen et al. (2017), green advertising design contains three dimensions in this study.

- (1) **Product orientation:** The advocated points present environment-friendly characteristics, e.g. the product being biodegradable, of products.
- (2) **Process orientation:** It refers to the internal production technology or processing method of an organization showing environmental benefits, e.g. 20% product materials being recycled and reused.
- (3) **Image orientation:** It refers to an organization broadly support environmental businesses or activities, e.g. a company dedicating to protecting forests.

Environmental Attitude

Choi et al. (2015) regarded attitudes being composed of cognition, affection, and behavior, where cognition referred to the acquaintance and judgment of people, affairs, and objects, affection referred to emotional affection tendency to people, affairs, and objects, and behavior indicated behavior tendency to people, affairs, and objects. Tih et al. (2016) regarded attitude as individual inner image of the attitude object, referring to the origin and preparation of behaviors and a complicated psychological process, including cognition, emotion, and behavior tendencies with persistent and consistent characteristics. Anggraeni (2015) mentioned that research on attitude covered from the cognition of outward people, affairs, objects, and surrounding world to the affection of liking or disliking something as well as the persistent and consistent behavior tendency. Any attitudes were gradually learning from such three points. Environmental attitude referred to the attitude tendencies of pro or against, like or dislike to the entire environment or environment-related affairs. Park and Lee (2016) regarded environmental attitude as individual support of environmental affairs. Environmental attitude could be defined as the belief combination in special situations in environment, entire environment, or people or objects directly related to environment. Giebelhausen et al. (2016) pointed out environmental attitude as individual concerns about environment. Kovilage and Gnanapala (2016) regarded "environmental attitude" as people's opinions, points of view, and belief of environmental problems as well as the dedication to the support. It contained psychological performance on specific people, affairs, and objects in

environment, including belief in environmental issues, environmental value, responsibility, agreement, like and dislike, opinions, and tendency.

Referring to Lin et al. (2017), environmental attitude in this study covers the following dimensions.

- (1) **Cognition:** referring to knowledge and perception related to the combination of humans' direct experience in attitude targets and relevant information.
- (2) **Affection:** referring to positive or negative human reaction to attitude targets. Affection of environment, i.e. individual emotional feelings about environment, might be like or dislike and good or bad.

Purchase Intention

Kang (2015) mentioned that consumers' decision of product purchase could be a decision-making process; in other words, consumers would collect various product related data, make evaluation, and eventually decide to purchase or not. In consumers' decision-making process, purchase intention was a primary key point. Hanaysha (2016) indicated that consumers' data source processing would affect the preference and further present purchase intention. According to Becheur et al. (2017), purchase intention in theory of planned behavior referred to individual subjective judgment to engage in certain behavior, reflecting individual intention or willingness to involve in certain behaviors. The role of purchase intention in behavior process could be predicted through willingness. When willingness could be properly measured, the acquired data would be close to most actual behaviors. Suki et al. (2016) regarded purchase intention as consumers being willing to adopt specific purchase behaviors. DeVellis (2016) divided consumer characteristics into descriptiveness and predictivity and considered that predicting purchase behaviors with willingness was more accurate than with preference. Kwon and Mattila (2015) indicated that purchase intention could reflect consumers' predictable behaviors, i.e. future purchase decisions in short term. In other words, purchase intention could predict consumers' next purchased products or brands; prediction could be more easily inferred with purchase intention than with past sales trend.

With the literature review, purchase intention, referring to Chan et al. (2016), could be measured with (1) possible to purchase, (2) intend to purchase, and (3) consider to purchase.

Research Hypothesis

Lu et al. (2015) indicated that, when consumers purchased objects based on incomplete information, the cognition value could be the signal of positive effects on purchase intention; cognition value was a key factor in purchase intention. Negative cognition value would reduce consumers' purchase intention (Cavanaugh et al. 2015). Chen et al. (2015) stated that consumers considering a product with high value due to green advertising design would tend to purchase the product. Chen et al. (2017) pointed out notably positive effects of green advertising design on purchase intention, as green advertising design was a positive environmental behavior to have consumers appear positive cognition value and further affect the purchase intention. It is therefore assumed in this study that

H1: Green advertising design presents positive and significant effects on purchase intention.

Yang et al. (2015) indicated that consumers gradually concerned about environmental problems in past years and enterprises successively promoted various environmental products and green advertising design due to consumers' environmental attitudes. Good products would enhance customers' cognition value, and customers' environmental attitudes were the key factor in making decisions. An enterprise developing environmental activities and applying green advertising design could reduce production costs and improve company image and reputation (Charter 2017). The worsening environmental problems and consumers' emphases on environmental problems had enterprises more positively face profits and environment problems and design products and advertisement towards green development (Choi et al. 2015). Moreover, an enterprise with environmental responsibility, in consideration of consumers' environmental attitudes, would transform the advantageous application of green advertising design to the potential benefits (Thomson and Crocker 2015). Lin et al. (2017) indicated that an enterprise with same product characteristics, quality, and prices with the competitors would apply consumers' environmental attitudes to the green advertising design as the brand establishment or company reputation. For this reason, it is assumed in this study that

H2: Environmental attitude shows positive and remarkable effects on green advertising design.

Xue (2015) indicated that an individual with more positive environmental attitudes was more possible to adopt environmental actions. In this case, individual

Table 1. Fit analysis of the research model

Fit Indices	allowable range	this research model	model fit judgment
χ^2 (Chi-square)	the smaller the better	23.55	
χ^2 -degree of freedom ratio	<3	1.36	match
GFI	>.9	0.98	match
AGFI	>.8	0.88	match
RMSEA	<.08	0.07	match
CFI	>.9	0.94	match
NFI	>.9	0.92	match

and group attitudes were the key factor in green product purchase behaviors. Karmarkar and Bollinger (2015) found out the notable relations between green consumption attitude, environmental concerns and green consumption behavior intention. In the study on college students' environmental sensitivity, personal traits, action skills, environmental cognition, and environmental attitude, Tih et al. (2016) found out action skills, individual responsibility, and participation in environmental activities as the most predictable variables of environmental behaviors. Kang (2015) also pointed out better performance of students participating more in environmental activities on environmental cognition, attitude, and behavior than those not participating in activities. Chan et al. (2016) studied the youth's consumption cognition, attitudes, and behaviors of green food and discovered that ones with better green food consumption cognition showed more positive green consumption attitudes and those with more positive attitudes revealed better green consumption behaviors on green food; besides, green food consumption attitude was an effective predictor when green food consumption willingness was regarded as the dependent variable. Accordingly, it is assumed in this study that

H3: Environmental attitude appears positive effects on purchase intention.

SAMPLE AND MEASURING INDICATOR

Research Sample and Object

Aiming at unintended audience in Taiwan as the research objects, 360 copies of questionnaire are randomly distributed in northern, central, and southern areas. Total 241 valid copies are retrieved, with the retrieval rate 67%.

Analysis Method

SPSS factor analysis is utilized in this study for testing the reliability and validity, and SEM is applied to evaluate the green advertising design, purchase intention, and consumers' environmental attitude.

Reliability and Validity Test

After the factor analysis of the green advertising design table, a total of three factors were extracted; after the factor of the environmental attitude analysis, a total of two factors were extracted; the purchase intention table was analyzed by factor analysis, and three factors were extracted as follows.

variable	factor	eigenvalue	α	cumulative variance explained
green advertising design	product orientation	2.826	0.87	76.438
	process orientation	3.441	0.88	
	image orientation	2.163	0.82	
environmental attitude	cognition	1.664	0.94	82.517
	affection	1.383	0.90	
purchase intention	possible to purchase	2.041	0.83	86.715
	intend to purchase	1.877	0.80	
	consider to purchase	2.364	0.86	

EMPIRICAL RESULT ANALYSIS

Structural Model Analysis

The structural model analysis contains the model fit analysis and the explanation power of the research model. Referring to researchers, 7 numerical indices are used for testing the model fit, including chi-square (χ^2) test, χ^2 -degree of freedom ratio, fit indices, adjusted fit indices, root-mean-square error mean, comparative fit indices, comparative hypothesis model, and chi-squared test of independence. The results are organized in **Table 1.**

From above, χ^2 -degree of freedom ratio is used for testing the model fit, which is better smaller. The χ^2 -degree of freedom ratio of this research model appears <3 (1.36). GFI and AGFI are better close to 1, but there

Table 2. Overall linear structural model analysis result

evaluation item	parameter/evaluation standard	result	
preliminary fit	green advertising design	product orientation	0.65*
		process orientation	0.67*
		image orientation	0.63*
	environmental attitude	cognition	0.68**
		affection	0.70**
	purchase intention	possible to purchase	0.72**
intend to purchase		0.73**	
consider to purchase		0.75**	
internal fit	green advertising design→purchase intention	0.88**	
	environmental attitude→green advertising design	0.80**	
	environmental attitude→purchase intention	0.83**	

Note: * stands for $p < 0.05$, ** for $p < 0.01$, *** for $p < 0.001$

is not an absolute standard to judge the model fit; GFI $> .9$ and AGFI $> .8$ are acceptable. GFI and AGFI of this research model show .98 and .88, respectively. RMSEA between .05 and .08 reveals good model and reasonable fit. RMSEA of this research model shows .07. The acceptable standard of CFI is $> .9$, and CFI of this research model appears .94. NFI should be at least higher than .9, and NFI of this research model shows .92. Overall speaking, the fit indices conform to the standards, revealing the acceptable model of the research results. The research samples therefore could be used for explaining the actual observation data.

According to above overall model fit indices, favorable fit appears between the set model and observation data, showing that the theoretical model could fully explain the observation data. In this case, the correlation coefficient and coefficient estimate of environmental attitude to green advertising design and purchase intention could be further understood.

The data are organized in **Table 2**. The complete model analysis results reveal that three factors in green advertising design (product orientation, process orientation, and image orientation) could significantly explain green advertising design ($t > 1.96$, $p < 0.05$), two factors in environmental attitude (cognition and affection) could remarkably explain environmental attitude ($t > 1.96$, $p < 0.05$), and three factors in purchase intention (possible to purchase, intend to purchase, and consider to purchase) could notably explain purchase intention ($t > 1.96$, $p < 0.05$). Apparently, the overall model in this study presents good preliminary fit.

In regard to internal fit, green advertising design shows positive and remarkable correlations with purchase intention (0.88, $p < 0.01$), environmental attitude reveals positive and notable correlations with green advertising design (0.80, $p < 0.01$), and environmental attitude also appears positive and

significant correlations with purchase intention (0.83, $p < 0.01$) that H1, H2, and H3 are supported.

CONCLUSION

Research results reveal that green advertising design presents certain effects on the persuasion and communication with consumers to change the persistent behaviors. The enhancement of environmental knowledge could benefit environment-friendly behaviors. Green information could be provided for environmental education and promotion in societies so that consumers could acquire adequate environmental knowledge, perceive the advantage of green consumption, establish ecological protection value, and generate positive green consumption attitude to benefit environmental behaviors. Accordingly, various measures in green advertising design should be taken for different types of consumers. For instance, environmental information could be timely provided, aiming at altruistic consumers who stress on social benefits and egoistic people who could be beneficial for the development of green behaviors, to enhance the engagement in green consumption. The cultivation of environmental attitude through green marketing and environmental education is a primary route to change behaviors, e.g. providing information for consumers understanding the advantages and shortcomings of purchasing locally produced food, allowing purchasers realizing energy-saving food, or emphasizing the positive environmental attitudes to purchase such food. The provision of such knowledge allows consumers realizing the effect of the purchased food on the environment.

SUGGESTION

According to the research results and findings, practical suggestions are proposed in this study.

1. An enterprise should present just, transparent, and harmonious business ideas and corporate

- culture, positively integrate social responsibility and environmental needs, implement green value from top to down, promote green business policies, follow green strategies from product materials, process, marketing, to promotion, pay attention to the resource consumption of energy, paper, and water, encourage the employees to participate in environmental activities, and insist on the business model, vision planning, basic value, corporate mission, and employee behavior criteria of the enterprise in order to enhance the corporate image and strengthen the competitiveness, establish the green image, as well as enhance business benefits and environmental protection.
2. Consumers would blindly pursue public opinions and the consumption habit can hardly be changed immediately. Consumers might be used to purchase conventional products or rely on products endorsed by celebrities or recommended by advertisement. To enhance an enterprise's emphasis on green products and prevent consumers from hazards caused by hypocritical green advertising design, consumers should develop themselves, enhance the understanding of products, and present the cognition of environmental protection when facing numerous products. The connection with network communities or participation in environmental activities could enhance the understanding of green behaviors.
 3. The diversified environment related problems require broader and deeper treatment. The environmental characteristics of green products, the application of green advertising design, the reduction of hazards to environment in the production process, and an enterprise's social responsibility for environmental issues are covered in business operation. In addition to satisfying consumers' various green needs, the conformity with green product regulations in various consumer markets is the key to promote green products to each consumer and the global consumer market.

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