The First-person Effect of Green Advertising

Chiou-Fong Wei[1], Bruce C Y Lee[2], Kai-ting Wei[3] and Yao Chen[4]*

Abstract

Research on people's perceptions of media effects had been focused on third-person effect of negative information, whereas the first-person effect of positive information was less explored. This paper aims to investigate the drivers of the first-person effect of green advertising and its behavioral consequences. An online questionnaire survey was used to collect data, obtaining 414 valid questionnaires that were analyzed using Partial Least Squares structural equation modeling. The result indicates that (1) the first-person effect existed in green advertising; (2) social desirability, environmental involvement, and advertising involvement had positive impact on the first-person effect, which in turn, led to green supportive behavior. In addition, this study proposes relevant theoretical implications and practical applications, as well as suggests for future research directions.

[1] Business School, Guangzhou Nanfang College, Guangzhou, China.
[2] Department of Finance and International Business, Fu Jen Catholic University. New Taipei City, Taiwan.
[3] Graduate Institute of Textiles and Clothing, Fu Jen Catholic University, New Taipei City, Taiwan.
[4]* Graduate Institute of Business Administration, Fu Jen Catholic University, New Taipei City, Taiwan. *Corresponding author.

1. Introduction

In the 21st century, with the continuous progress of the economy, limited resources are being consumed rapidly. The ensuing problems of global warming, climate change, water and air pollution, and species loss have prompted people to actively seek solutions and continue to focus on how to reduce the impact of human excessive consumption on the environment (Altmann, 2015; Jiang & Gao, 2023). China's reform and opening was started in 1978, the rapid economic development has lifted hundreds of millions of people out of poverty, but it has also brought a heavy burden to environmental pollution. For environmental governance, in addition to the need for the cooperation of the government and enterprises, China's 1.4 billion consumers play an important role in green consumption and production systems. In the past 20 years, under the long-term advocacy of green ads of waste-sorting by the media, China has been trying to implement waste-sorting collection in 8 cities including Beijing, Shanghai, Guangzhou, and Shenzhen, with little success. Since first July 2019, Shanghai has entered the era of mandatory waste-sorting collection, and 46 major cities across the country, including Beijing, Guangzhou, and Shenzhen, have also advanced. It is still unknown whether green ads are effective and to understand further the key factors and consequences that affect people's perception of media information is highly necessary.

Previous studies have shown that green advertising is an important factor in influencing green consumption behavior (Montoro Rios et al., 2006), because the public wants to know about its environmental characteristics from the media (Imkamp, 2000). therefore, the research on the media effect of environmental protection information on the audience has been highly valued by scholars. There are two main studies on the influence of media messages on audiences. One mainly analyzes the impact of media information on the audience's direct perception, which has not yet been fully confirmed. In contrast, the other focuses on the impact of media information on the audience's indirect perception, and the third-person effect (Davison, 1983) has become an important theory in the study of media effects (Perloff, 2009). Golan & Day (2008) have recently begun to study and expressed support for the first-person effect (Atwood, 1994).

Since Davison (1983) put forward the third-person effect that people tend to overestimate the influence of media information on others, follow-up studies have indicated that negative information that contradicts the audience's thoughts is under the individual's optimistic bias that the risk will not happen to them, people expect themselves to be less susceptible than others (Gunther & Mundy, 1993). However, for positive information that is beneficial to the audience, the third-person effect will be weakened or disappeared under the ego enhancement of individuals who think that they respond better to media information than others (White & Dillon, 2000), and even reverse the third-person effect that people tend to overestimate the influence of positive information on themselves (Cohen & Davis, 1991), scholars call it the first-person effect (Atwood, 1994). However, the positive information that is beneficial to the audience will weaken or disappear, or even reverse the third-

person effect, when the individual is under the ego enhancement that oneself responds better to the media information than others (White & Dillon, 2000).

After the third-person effect was presented, scholars used survey methods or experimental methods to examine different issues, all of which supported the existence of the third-person effect (Golan & Day, 2008). Moreover, the greater the perceived gap in the third-person effect, the more people support regulating or restricting the dissemination of negative media information (Salwen & Driscoll, 1997; Tsfati & Cohen, 2003). Empirical studies on third-person effects were abundant, but first-person effects studies that examined positive information were rare. In addition, there were few studies on whether first-person effect would affect audience behavior (Golan & Day, 2008). The results from a small number of the first-person effects studies are also mixed, with some producing first-person effects as expected (Lin, 2013), while others disappearing (Duck & Mullin, 1995) or appearing the third person effect (Innes & Zeitz, 1988). The first-person effect and third-person effect measurements involve complex perceptual judgments between others and themselves. In addition to considering positive and negative information, the characteristics of the audience will also affect the evaluation results of the perceived gap between people and themselves and subsequent behavior changes (Chock et al., 2007).

Environmental protection problems have become more and more serious after high economic development. In addition, people's understanding of the impact of green ads is still quite limited. The questions in this study are: (1) Does it have the first-person effect in green ads? (2) Will information and audience characteristics affect the first-person effects? (3) Does the first-person effect affect the green supportive behavior? To answer these questions, this study aims to propose seven constructs-social desirability, environmental involvement, advertising involvement, altruistic environmental concern, egoistic environmental concern, first-person effect, and green supportive behavior to develop a research framework and discuss their theoretical and managerial implications.

2. Theoretical Background

2.1   The first-person effect

The first-person effect (FPE) is evolved from the third-person effect (TPE) theory. Over the years, the academic research trend has developed from the TPE to the FPE and has also expanded from the effect itself to the perceived gap. Some scholars divide this gap into TPE perception and FPE perception. When negative information affects others more than oneself, the gap is the TPE perception; when positive information affects oneself more than others, the gap is called FPE perception (Gunther & Thorson, 1992). Although the FPE has not yet reached a consensus in theory and evidence; however, scholars advocate that based on the ego enhancement, people consider themselves to be better and more enlightened, and more able to accept persuasive positive information; they also believe that others are more selfish, numb or without an understanding of the information, TPE may diminish (Innes &

Zeitz, 1988) or develop FPE (Meirick, 2005). Previous studies have found that positive messages such as public service announcements and environmental documentaries are expected to have greater influence on themselves than others (Hofer, 2015; Huang, 2018). This study believes that green ads are positive information with FPE. The following hypothesis is proposed.

H₁: People expect that green ads will have a greater impact on themselves than others.

2.2   Social desirability

Social desirability refers to the media information that society allows and needs. Previous research has shown that people agree with socially expected media messages to conform to social norms, and then expect others to be more easily influenced by non-socially expected negative media messages than themselves (David et al., 2004). Individuals will try to define what is socially expected behavior and claim that their behavior is in line with the social desirability, to protect their self-image (Perloff, 2009) and demonstrate that they conform to the mainstream values of society, so they expect to receive this kind of information (Meirick, 2005). For example, public service ads meet social desirability, they are more able to make the audience think that this kind of information has more influence on oneself than others (Gunther & Thorson, 1992). This study believes that the higher people's social desirability, the greater the difference in their perceived first-person effects of green ads. The following hypothesis is proposed.

H₂: The higher the social desirability, the greater the perceived gap in FPE.

2.3   Environmental involvement

Involvement is the degree to which people perceive the importance and relevance of things or issues according to their own needs, values or interests, and its performance leads to a series of information collection and decision-making processes (Zaichkowsky, 1994). The theory of fundamental attribution error states that people tend to attribute their own attitudes and behaviors to external situational factors while attributing the attitudes and behaviors of others to internal personal traits (Jouffre & Croizet, 2016). When measuring the influence of media information on others, people will focus on personal factors, thus overestimating the effect of the media on others. While measuring the influence of media information on themselves, they will focus on situational factors, thus underestimating the effect of the media on themselves (Rucinski & Salmon, 1990). Environmental involvement is the degree of people's concern and commitment to environmental issues (do Paço & Reis, 2012). People have a high sense of involvement in relevant environmental protection information. Recent studies (Wei et al., 2017) have pointed out that environmental involvement will positively affect consumers' attitudes towards environmental protection. Inferred from the context of

the FPE, this study believes that the higher the audience's involvement in the environmental issue, the greater the gap between the expected influence of media information on itself and others. The following hypothesis is proposed.

H₃: The higher the environmental involvement, the greater the perceived gap in FPE

2.4   Advertising involvement

Advertising involvement refers to the psychological response state of the audience to the degree of interest in advertising information (Krugman, 1965). According to the Elaboration Likelihood Model (Cacioppo & Petty, 1981), when the degree of advertising involvement is higher, the scrutiny motivation increases and attitudes develop along the central route. Otherwise, they follow the peripheral route. Audiences who follow the peripheral path will not scrutinize and persuade information in detail; those who follow the central path will rationally think about the advertising information before deciding whether to accept the information. With pertinent persuasive messages, the audience will develop ideas that are beneficial to the message and change attitudes in the direction of the message's claims. However, when factor with low-credibility or questionable information, the audience trends to resist the information and change their attitudes in the opposite direction (Bohner & Dickel, 2011; Fraj & Martinez, 2007). Highly involved people will actively pay attention to advertising messages (Gardner, Mitchell & Russo, 1985). When the message is positive and related to self-interest, they perceive it as having a considerable impact, believing in their ability to identify the value of this information (Hoorens & Ruiter, 1996). This study believes that the higher the audience's involvement in green ads, the greater the gap between the expected media information on itself and others. The following hypothesis is proposed.

H₄: The higher the advertising involvement, the greater the perceived gap in FPE.

2.5   Environmental concern

Stern (2000) indicated that everyone has egoistic environmental concerns (EEC) or altruistic environmental concerns (AEC). Hartmann & Ibanez (2006) found that to conform to social norms and identity, improve social status and image, people begin to consider whether their consumption behavior will have an impact on society or the environment. Therefore, many manufacturers use green advertising requirements to stimulate consumer participate in environmental protection (Iyer, 1995). AEC refers to the belief that people voluntarily take environmental protection actions that are beneficial to others without external incentives. It is deeply influenced by moral beliefs (Schwartz & Howard, 1984). EEC refers to the belief in environmental protection that people will maximize their pursuit of behavior without sacrificing their own interests at any time. When an altruistic person finds that the environment has adverse consequences for others, he will self-

regulate to reduce the behavior that threatens the environment (Karp, 1996). On the contrary, an egoistic person ignores whether it will harm the rights and interests of others and tends to resist or actively oppose the environment conservation (e.g., people may not recycle resources because of inconvenience), nor are they willing to pay the additional costs associated with environmental protection (Stern, 2000). This study believes that people with higher AEC would expect green ads to have less influence on themselves than others, and the gap between the two would be smaller. However, people with higher EEC would expect green ads to have a greater impact on themselves than others, and the greater impact gap between the two. The following hypothesis is proposed.

H5: The higher the AEC, the smaller the perceived gap in FPE.
H6: The higher the EEC, the greater the perceived gap in FPE.

2.6   Green supportive behavior

People expect a perceived gap in the impact of media information on themselves and others and respond to supportive behaviors based on this gap (Davison, 1983). Most studies on the TPE behavior with negative information have found that the greater the perceived gap of the TPE, the more people are more likely to be based on the paternalism of protecting others from negative media information (Golan, et al. 2008), and tend to limit negative information content (Wu & Koo, 2001; Shah, et al. 1999; Rojas, Shah & Faber, 1996; Gunther, 1995). However, in FPE behavior studies, results have been divergent and inconsistent. Some showed that the FPE perceived gap cannot predict the supportive behavior of public service ads (Sun, et al. 2008). On the contrary, some showed that to allow others to benefit as well as themselves, the larger the FPE perceived gap, the more supportive behaviors on environmental issues (Lin, 2013). Huang (2018) found that information audiences are influenced by FPE perception and take follow-up actions. This study believes that the greater the perceived gap of FPE, the higher the behavior of people supporting positive and socially expected media propaganda content. The following hypothesis is proposed.

H7: The greater the perceived gap in FPE, the higher the green supportive behavior.

3. Method

To examine the model and the postulated hypotheses shown in Figure 1, the data were collected from an online survey. A closed-ended structured questionnaire was used to collect field data, consisting of three main sections, including demographic data, and seven latent constructs- social desirability (SD), environmental involvement (EI), advertising involvement (AI), AEC, EEC, FPE, and green supportive behavior (GSB). After the data were collected, Partial Least Squares (PLS) structural equation modeling was used to test the proposed hypotheses.

3.1   Measures

This study adapted the measurement items from previous studies. All scales contained multiple items by a Likert-type five-point scale (from 1 strongly disagree to 5 strongly agree). Two scholars in the management field who are competent in the subject area in both English and Chinese translated all the measures from English into Chinese in the proposed model. The measures were back-translated into English by another two scholars proficient in both languages to ensure equivalent meaning (Brislin, 1980). This procedure aimed to minimize the construct bias, method bias and item bias commonly found in cross-cultural studies (refer to, e.g., Chidlow et al., 2014; Ng, 2013).
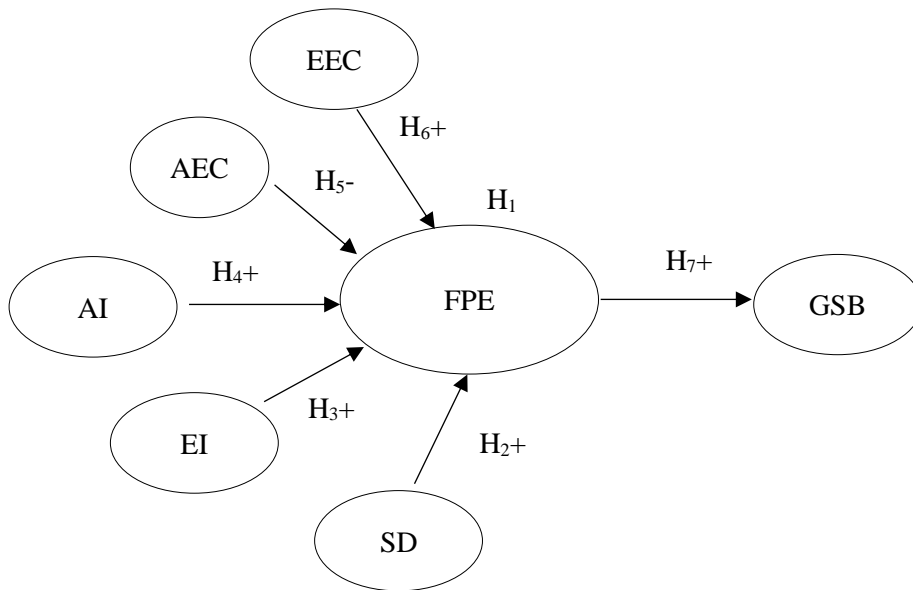
Figure 1: Proposed Model

The impact of green ads of waste-sorting (green ads) on oneself minus the impact on others score is the perceived gap of first-person effect (FPE). This FPE concept is adapted from Atwood's (1994) four items. This research adapted four items from Sun, et al. (2008) to measure social desirability (SD). Environmental involvement (EI) was adapted from three items by D'Souza & Taghian (2005). Zaichkowsky's (1994) six-item scale was used to measure advertising involvement (AI). Five items of egoistic environmental concerns (EEC) and four items of altruistic environmental concerns (AEC) were adapted from Schultz (2000). Green supportive behavior (GSB) was adapted from four items of customer engagement behavior by Kim (2013) and Verleye et al. (2014). The Appendix shows the final construct measurements.

3.2   Sampling and data collection

In this study, residents over 18 in Guangdong were surveyed, and an online questionnaire survey was conducted using convenience sampling. The subjects were invited by email to enter the online platform to watch the green ads broadcast by CCTV, and then fill in the questionnaire questions after watching (if no question is answered, the responder cannot skip to the next question). A pre-test of the questionnaire, including all construct measures, was performed with 50 graduate students and a total of 45 qualified questionnaires were completed and returned. The fifth item on the EEC scale (*I care about green information for the sake of my own future*) was deleted, as the factor loadings of EEC were lower than 0.5 (Kerlinger, 1986).

Table 1: Sample characteristics (N = 414)

Demographic	Characteristic	No of respondents	%
Gender	Male	197	0.48
	Female	217	0.52
Age	18-29	132	0.32
	30-39	178	0.43
	40-49	60	0.14
	50 and above	44	0.11
Education	High school and below	170	0.41
	College or university	227	0.55
	Master's and above	17	0.04

Because response order could impact how the respondent answered a question, the survey adopted the randomized response technique to obtain participants' truthful answers and to reduce bias (Nederhof, 1985). A convenience sample of 450 respondents was invited to participate in this survey. After invalid questionnaires (e.g., incomplete or all items in the same line) were deleted, 414 valid questionnaires were collected, indicating a 92 percent return rate. Among the respondents, 52 percent of the questionnaire respondents were female; 59 percent of the respondents had an education at college level or above. Additionally, 75 percent of the respondents fell within the age group of 18–39. Sample characteristics are shown in Table 1.

4. Results

4.1 Common method variance and non-response bias

This study performed Harman's single-factor test (Malhotra, et al. 2006) to test for common method variance in a self-administered questionnaire survey. Seven factors with eigenvalues greater than one were chosen. The explained variance of the first factor was 27.38%, which is below the threshold value of 50%, indicating that common method bias was not a significant problem in this study. Non-response bias was examined by following Armstrong and Overton's (1977) procedure. Separating the ordered samples into two groups, this study performed the independent sample t-test to compare the early responses with the late responses based on the dependent variables (i.e., GSB). The results showed no statistical significance, indicating that non-response bias was not an issue in this study.

4.2 Measurement model

To verify the reliability and validity of the proposed measurement model, this study used Cronbach's α (Cronbach & Meehl, 1955) and composite reliability (CR) to test the measures' internal consistency reliability. Convergent validity and discriminant validity were examined (Hair et al., 2017). Three requirements must be fulfilled to evaluate convergent validity. First, the factor loadings should be greater than the cut-off value (0.50) and significant (Kline, 2005). Second, each construct's average variance extracted (AVE) should be 0.50 or higher. Third, the CR should exceed the threshold value (0.70; Nunally & Bernstein, 1994). The AVE is the overall mean value of the squared loadings of a set of indicators (Hair et al., 2017). Discriminant validity is the degree to which the construct is empirically distinct from the other constructs that it is intended to measure. The Fornell and Larcker (1981) criterion, a common method for assessing discriminant validity, requires each construct's AVE to be higher than the highest squared correlation with any other construct. Discriminant validity was further evaluated by extracting the factors and cross loadings of the respective constructs' indicators.

Table 2: Loadings/Weights and reliability

Construct	Indicators	Loadings	α	CR	AVE
AEC			0.87	0.91	0.66
	aec_1	0.84^*			
	aec_2	0.81^*			
	aec_3	0.84^*			
	aec_4	0.80^*			
EEC			0.83	0.90	0.75
	eec_1	0.86^*			
	eec_2	0.90^*			
	eec_3	0.83^*			
	eec_4	0.76^*			
EI			0.73	0.85	0.65
	ei_1	0.79^*			
	ei_2	0.77^*			
	ei_3	0.86^*			
AI			0.91	0.93	0.70
	ai_1	0.85^*			
	ai_2	0.76^*			
	ai_3	0.78^*			
	ai_4	0.84^*			
	ai_5	0.90^*			
	ai_6	0.87^*			
SD			0.77	0.85	0.59
	sd_1	0.77^*			
	sd_2	0.73^*			
	sd_3	0.74^*			
	sd_4	0.83^*			
FPE			0.90	0.93	0.77
	fpe_1	0.85^*			
	fpe_2	0.90^*			
	fpe_3	0.86^*			
	fpe_4	0.89^*			
GSB			0.81	0.87	0.57
	gsb_1	0.75^*			
	gsb_2	0.72^*			
	gsb_3	0.75^*			
	gsb_4	0.77^*			
	gsb_5	0.79^*			
Criteria		0.70^*	0.70	0.70	0.50

Note: $^*p < 0.001$, two-tailed test.

The data displayed in Table 2 indicate that the minimum factor loading is 0.72 and is significant ($p < 0.001$). The minimum AVE is 0.57 (GSB), and the minimum CR is 0.85. Fornell and Larcker (1981) criterion is also met, as shown in Table 2. Each item loading is above 0.70. These data support the measurement model's reliability and validity. Finally, Table 3 demonstrates that all indicators load strongly with their construct and do not have stronger connections with other constructs (Segars & Grover, 1998). In conclusion, the statistical analyses confirmed that the reliability and convergent and discriminant validity of the measurement model are satisfactory.

Table 3: Discriminant validity

	AEC	EEC	EI	AI	SD	FPE	GSB
AEC	**0.81**						
EEC	0.66	**0.86**					
EI	0.57	0.56	**0.80**				
AI	0.42	0.35	0.30	**0.83**			
SD	0.34	0.34	0.45	0.23	**0.77**		
FPE	0.41	0.41	0.38	0.42	0.30	**0.88**	
GSB	0.56	0.50	0.46	0.38	0.33	0.53	**0.76**

Note: The bold numbers on the diagonal are the square roots of the AVEs. The off-diagonal elements are correlations between constructs.

4.3 Structure model

The paired t-test show that after watching the green ads, the respondents believe that they ($M = 3.79$, $SD = 0.57$) are more affected than those with the same education ($M = 3.68$, $SD = 0.58$) and reach a significant level ($t = 4.23$, $p < 0.001$). They are more affected than those with less education ($M = 3.33$, $SD = 0.69$), and this reach significance ($t = 12.28$, $p < 0.001$). Furthermore, they are more affected than others ($M = 3.53$, $SD = 0.55$), and this reach a significant level ($t = 7.64$, $p < 0.001$), supporting hypothesis H_1.

The assessment of the model's quality is based on its ability to predict endogenous constructs (Hair et al., 2017). The coefficient of determination (R^2), the path coefficients, and their respective p-values are three assessments used to evaluate the proposed model. R^2, which represents the percentage of the variance explained for the dependent variables, is usually employed to measure a model's predictive accuracy. Path coefficients and their p-values represent the hypothesized relationships between the constructs. By specifying a structural model in PLS and running the PLS algorithm along with the bootstrapping procedure with 5000 bootstrap samples in SmartPLS 2.0, this study obtained the path coefficients (β), their respective p-values and the R^2 coefficients of the endogenous constructs.
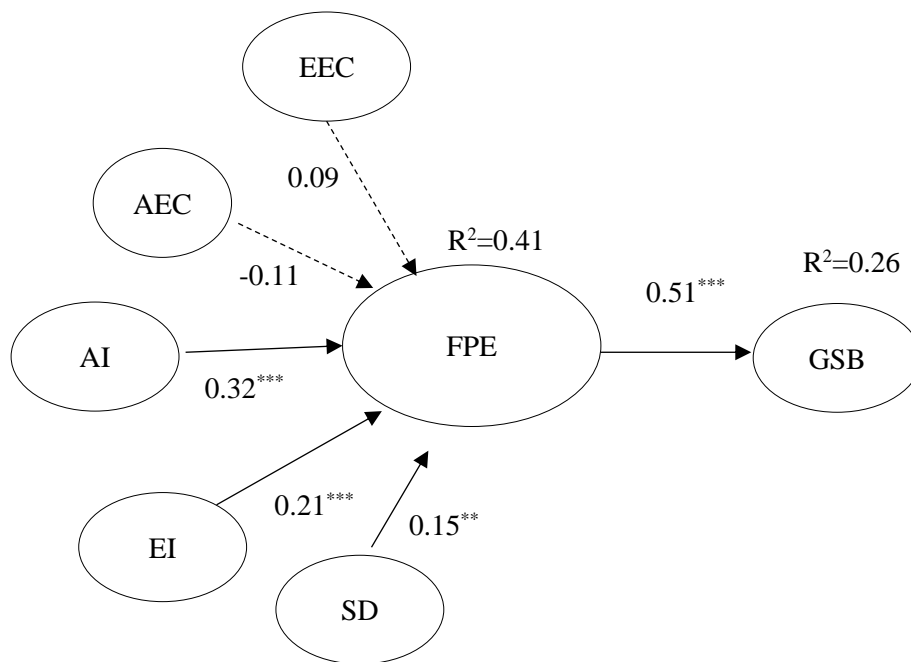
Figure 2: Result model

Note: ***p < 0.001, **p < 0.01

The results shown in Figure 2. H_2 is supported, since FPE is found to be significantly influenced by SD ($\beta = 0.15$, $p < 0.01$). H_3 is supported, since FPE is found to be significantly influenced by EI ($\beta = 0.21$, $p < 0.001$). H_4 is supported, since FPE is found to be significantly influenced by AI ($\beta = 0.32$, $p < 0.001$). H_5 and H_6 are not supported, since FPE is found to be not significantly influenced by AEC ($\beta = -0.11$, $p > 0.05$) and EEC ($\beta = 0.09$, $p > 0.05$). Finally, H_7 is also supported, with the path coefficient between FPE and GSB at 0.51 ($p < 0.001$). In terms of the predictive ability of the structural model, the R^2 of FPE and GSB are both greater than 0.25, indicating that the predictive ability of the model is acceptable (Hair et al., 2017). The results of testing the structural model are shown in Figure 2.

5. Discussion

This study provides potentially valuable insights for academic researchers and practitioners of media perception effects, while also opening a new avenue to improve our understanding of the perceived behavior of green ads.

5.1 Theoretical implications

Compared with the rich research on the third-person effect, the empirical evidence of the first-person effect is not only less, but also no scholars have conducted research on the first-person effect of green ads. According to the results of a small amount of previous research and actual interviews, the framework constructed in this study has a high predictive ability.

Firstly, it can accurately explain the antecedents and consequences of the first-person effect of green ads and verify the positive effect of green ads. Positive information of green ads has a first-person effect, which echoes the claims of previous environmental public information research scholars (Hofer, 2015). That is, people expect green ads to have a greater impact on themselves than others, which should inspire or help follow-up communication, research and development of advertising effects related to environmental issues. Secondly, social desirability is identified as positive factor influencing first-person effect perception, echoing the scholars' perspectives. Specifically, the more helpful and social needs and conventions people perceive media information to be, the greater the first-person effect perception will be (Chapin, 2000). Simultaneously, a greater educational attainment gap, corresponds to a larger perceived gap in first-person effect. Third, the elaboration likelihood model provides a theoretical basis for explaining the relationship among environmental involvement, advertising involvement, first-person effect perception, and green support behavior. Individuals paying more attention to environmental protection issues or green ads trend to follow the central path and rationally. Judging that green ads are valuable, conform to social desirability, and are related to their own interests. Consequently, a high tended perception of the first-person effect will strengthen their green support behavior (Lin, 2013; Huang, 2018). Finally, in this study, neither egoistic environmental concern nor altruistic environmental concern had a significant difference on first-person effect perception. They may be the mediating variables between first-person effect perception and green support behavior. Especially when altruists find that environmental pollution brings adverse consequences to others, they will self-regulate to reduce behaviors that threaten the environment (Karp, 1996), and support green behavior more.

5.2 Managerial implications

This study found that first-person effect perception directly affects green support behavior, which may be related to the current Chinese national mandatory green policy (e.g., waste-sorting). However, the environmental protection problems arising from China's high economic development are becoming more and more

serious, and the people must be more willing to support and take the initiative to develop the habit of green behavior according to regulations. When green marketing managers formulate communication strategies to interact with the public and solve the green problems, they should consider environmental involvement, advertising involvement, and social desirability to enhance people's first-person effect perception and green support behavior.

More specifically, green marketing managers could influence individual's first-person effect perception of green ads through (1) fostering the target market according to its level of environmental involvement, (2) creating attractive ads that meet social desirability to increase people's attention to green information, (3) awakening people to voluntarily adopt moral beliefs that are beneficial to self and others, such as: green behavior can leave a beautiful homeland for children, people in the community, future generations, human descendants and yourself, (4) stimulating the public's consciousness of environmental protection, learn the knowledge of green behavior (e.g., waste-sorting), and (5) recruiting volunteers with community awareness and enthusiasm to remind the public to recycle resources after training.

5.3   Limitations and suggestions

Although this research could enhance our knowledge in the field of media effect perception for green ads, this study acknowledges that the results still have certain limitations. First, taking the residents over 18 years old in Guangdong Province as a sample, the conclusions drawn cannot represent the overall situation of residents in 46 key cities across the country. Follow-up studies could expand targets (e.g., elderly people who rarely use the Internet) and regions (e.g., Beijing, Shanghai, Shenzhen, etc.). Second, the online questionnaire method cannot directly observe the subjects. In the future, more rigorous experimental methods or panel database surveys can be used to improve the authenticity of the data and make the research results more convincing. Third, follow-up studies may consider adopting longitudinal research methods for research design, collecting samples at different time points for comparative analysis of media effect perception, to solve the possible research limitations of cross-sectional research. Finally, egoistic environmental concern and altruistic environmental concern cannot predict first-person effect perception, and follow-up studies can further examine whether they can mediate the relationship between first-person effect perception and green support behavior.

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Appendix

Construct	Indicators	Source
Social desirability (SD)	I think green ads is in line with social needs (sd1)	Sun, Pan & Shen (2008)
	I think green ads is in line with social norms (sd2)	
	I think green ads is in line with helpful to society (sd3)	
	I think green ads is in line with cultural value (sd4)	
Environmental involvement (EI)	About green information, I will pay attention to its information (ei1)	D'Souza & Taghian (2005)
	About green information, I will think it affects my quality of life (ei2)	
	I would like to contribute (ei3)	
Advertising involvement (AI)	I think green ads is interesting (ai1)	Zaichkowsky (1994)
	I think green ads is exciting (ai2)	
	I think green ads is attractive (ai3)	
	I think green ads is charming (ai4)	
	I think green ads is related to environmental protection (ai5)	
	I think green ads is important (ai6)	
Perceived gap of first-person effect (FPE)	Green ads is effectively (fpe1)	Atwood (1994)
	Green ads will make people pay more attention (fpe2)	
	Green ads will make people want to know the relevant policies (fpe3)	
	Green ads will make people consciously carry out waste-sorting (fpe4)	
Egoistic environmental concerns (EEC)	I care about green information for the sake of myself (eec1)	Schultz (2000)
	I care about green information for the sake of my quality of life (eec2)	
	I care about green information for the sake of my own lifestyle (eec3)	
	I care about green information for the sake of my own health (eec4)	
	I care about green information for the sake of my own future (eec5)	
Altruistic environmental concerns (AEC)	I care about green information for the sake of children (aec1)	Schultz (2000)
	I care about green information for the sake of people in the community (aec2)	
	I care about green information for the sake of future generations (aec3)	
	I care about green information for the sake of human beings (aec4)	
Green supportive behavior (GSB)	To complete the environmental protection, I will spend a lot of time participating in activities (gsb1)	Kim (2013) and Verleye et al. (2014)
	To complete the environmental protection, I will tell my friends the information I have obtained (gsb2)	
	To complete the environmental protection, I will tell the relevant units what I need (gsb3)	
	To complete the environmental protection, I will recommend related issues to friends (gsb4)	