INFLUENCES OF FRAMING EFFECT AND GREEN MESSAGE ON ADVERTISING EFFECT

JUI-CHE TU AND TSAI-FENG KAO
National Yunlin University of Science & Technology
YI-CHAN TU
National Kaohsiung University of Hospitality and Tourism

Designing green product marketing is a helpful solution for enhancing green awareness, and for promoting the protection of the environment. In this study we explored the framing effect in advertising design, and analyzed the relationship between framing effect (FE) and green message (GM), as well as their influences on advertising. We adopted a quasi-experimental method, and conducted empirical research according to $2 \times 2$ between-subject factors. The results showed that green messages influenced consumers’ reaction toward positive and negative frames. Consumers who did not receive green messages preferred positively framed advertising. After receiving a green message, the consumers’ attitudes regarding positively and negatively framed advertising were similar for both types.

Keywords: green advertising design, green marketing, framing effect, green message, green consumption.

Environmental problems have become important global issues in recent years, and the green movement has been regarded as a critical social movement (Banerjee, Gulas, & Iyer, 1995; Lampe & Gazda, 1995). Green consumption must be seen in the context of discussion surrounding the development of sustainable ways of living that incorporate other environmental actions in a holistic conceptualization of sustainable lifestyles (Gilg, Barr, & Ford, 2005).
Being environmentally friendly involves consumers behaving in a certain way (Bator & Cialdini, 2000; Dietz, Ostrom, & Stern, 2003). However, there is a gap between the consumers’ attitude toward green consumption and their behavior (Bonini & Oppenheim, 2008). Green marketing personnel should consider how to increase the consumer use of environmentally friendly products.

Advertising information influences the consumers’ attention to and memory of advertising content (McKay-Nesbitt, Manchanda, Smit, & Huhmann, 2011). Advertising provides information for potential customers to encourage their use of the products and services being promoted (Priester & Petty, 2003). As the population covered by marketing communication has rapidly increased, advertising effect is critical in marketing (Kumar, 2000).

According to the framing effect (FE) in advertising and marketing it is suggested that different information framing will be interpreted uniquely in various situations; hence, the effects will vary for different types of product advertising (Ganzach, Weber, & Ben Or, 1997; Levin & Gaeth, 1988; Levin, Schneider, & Gaeth, 1998; Tversky & Kahneman, 1981; Wu & Cheng, 2011). Therefore, FE can be a strategy of advertising communication (Wu & Cheng, 2011). Many researchers have focused on comparisons between positive and negative FE (Cheng & Wu, 2010; Ganzach et al., 1997; Lauriola, Russo, Lucidi, Violani, & Levin, 2005; Levin & Gaeth, 1988; Rucker, Petty, & Briñol, 2008; Shiv, Edell, & Payne, 1997; Smith, 1996). However, there is no consistent conclusion regarding the influence of FE on advertising effect.

Smith (1996) suggested that positively framed advertising has a more favorable impact than does negatively framed advertising on purchase decisions for transformational products. Rossiter, Percy, and Donovan (as cited in Smith, 1996) made an important distinction between two classes of product categories: consumers purchase informational products to remove or avoid problems and negative emotional states. Purchase motivations for products such as insurance, aspirin, or cleaning products are primarily negatively reinforcing to help consumers maintain their current state of well-being and avoid potential losses. Consumers purchase transformational products to “enhance the brand user by effecting a transformation in the brand user’s sensory, mental, or social state” (Rossiter, Percy, and Donovan as cited in Smith, 1996). Purchase motivations for products such as candy, perfume, or champagne are primarily positively reinforcing to help consumers go beyond their current state of well-being to achieve potential gains. According to Chang (2008), positively framed advertising messages evoke higher levels of positive effects than do negatively framed advertising messages. This is a process by which the frame-evoked effect exerts influence on brand attitudes via its impact on cognitive responses. Accordingly, positively framed advertising messages generate more favorable ratings of advertising credibility, advertising liking, and brand attitudes. On the contrary, if the subject matter
is related to health, such as information about breast self-examination or skin cancer testing, negative framing will evoke higher levels of positive effects than will positive framing, because the motivation to avoid loss will influence judgment (Rothman, Salovey, Antone, Keough, & Martin, 1993; Smith, 1996). In both positively and negatively framed advertising, it seems that advertising effect is related to the attributes of the products or themes promoted.

The relationship between environmental knowledge and environmental behavior has been validated in many studies. A large amount of environmental knowledge enhances environmentally friendly behavior (Mostafa, 2009; Rokicka, 2002; Stern, 1992). Consumers’ purchase behaviors are influenced by environmental concerns (Shrum, McCarty, & Lowrey, 1995). Some consumers may use environmentally friendly products to demonstrate their environmentally conscious behavior (Hartmann & Apaolaza-Ibáñez, 2012). In order to increase consumers’ quality of life and improve the ecological system, marketing personnel aim to enhance the environmental value of the products or services in the eyes of consumers, enhance their educational functions, and highlight the difference between green and nongreen actions (Polonsky, 2011).

In this study we attempted to determine whether or not consumer purchases of green products are influenced by green messages (GM). Specifically, we explored the influences of FE and GM on advertising effect. By replicating and expanding previous research, we adopted the method of Cheng and Wu (2010) for discussing the influences of different types of FE on consumer attitudes toward products. Regarding the effect of GM on attitude, we adopted the strategy described by Litvine and Wüstenhagen (2011), who suggested that providing information is one of the main strategies used in intervention studies and field experiments that explain how to promote proenvironmental behaviors. The findings of our research could provide an understanding of the factors affecting consumer judgments of green advertising, as well as the influences of green advertising effect factors.

**Theoretical Background**

**Meaning and Study of Framing Effect**

FE refers to the outcome of different decisions made toward two logically similar statements regarding the same issue (Bettman & Sujan, 1987). Positively or negatively framed statements will lead to different decisions (Gonzalez, Dana, Koshino, & Just, 2005; Levin et al., 1998).

According to Levin et al. (1998), there are three types of FE: (1) risky choice framing, which refers to how valence affects willingness to take a risk; (2) attribute framing, which refers to the comments that will influence a particular subject or event; and (3) goal framing, which has the effect of persuasion. Among
these three, attribute framing is the basic evaluation process that directly tests positive or negative framing.

In previous studies on positively and negatively framed advertising effects researchers have focused on the relative effects of positive and negative framing information. As suggested above, there is no consensus on the advertising effects of FE (Cheng & Wu, 2010; Ganzach et al., 1997). In general, during the decision-making process when purchasing products, positively framed advertising has more effect than negatively framed advertising (Smith, 1996). The reason is that the former can easily and actively influence consumers. Moreover, the framing influences consumers through their cognitive reactions, and thus, consumers make more positive comments on the advertising reliability, advertising preference, and brand attitude (Chang, 2008). On the contrary, if the subject matter is related to health, negative framing will be more influential than will positive framing. Meyerowitz and Chaiken (1987) conducted an experiment using a brochure that presented the outcomes of failing to perform a breast self-examination (BSE). They found that the brochure on failing to perform a BSE (negative framing) had a greater effect than did one that promoted BSE (positive framing). In a study on the effect of a promotion for skin cancer testing, Rothman et al. (1993) also found that negative framing had a greater effect than positive framing. Tversky and Kahneman (1981) explored the causes of FE, and indicated that with either positive or negative framing, individuals will make different selections and will have different preferences. When they encounter positive frames based on gaining something, people will prefer concrete selections and have a risk-aversion attitude. On the contrary, when they encounter negative frames based on losing something, they will prefer risky selections and have a risk-seeking attitude.

In our research we focused on green product advertising effects using common products. The adopted framing concept used in this study was attribute framing, as classified by Levin et al. (1998). For this study we tested positive and negative frames directly, and showed the characteristics of basic evaluations. Based on the above, the following hypotheses were proposed:

**Hypothesis 1:** Positively framed green advertising will lead to more positive advertising effects than will negatively framed green advertising.

**Hypothesis 1a:** Positively framed green advertising will lead to more positive advertising attitudes than will negatively framed green advertising.

**Hypothesis 1b:** Positively framed green advertising will lead to more positive brand attitudes than will negatively framed green advertising.

**Hypothesis 1c:** Positively framed green advertising will lead to more positive purchase intentions than will negatively framed green advertising.
Influences of Green Message and Framing Effect on Advertising Effect

The enhancement of public environmentally friendly behavior is a key task in green marketing, and it is related to human psychological motives and behavior (Hartmann & Apaolaza-Ibáñez, 2012; Mostafa, 2009; Polonsky, 2011; Rokicka, 2002; Shrum et al., 1995; Stern, 1992). In environmental actions, internal motives are particularly valued. Social regulations can be internal motives, and these can cause individuals to have greater intentions to save energy and display herd behavior while engaging in green consumption (Griskevicius, Tybur, & Van den Bergh, 2010; Nyborg, Howarth, & Brekke, 2006; Van Vugt, 2009). Therefore, in order to increase consumers’ green energy needs, besides promoting environmental issues and benefits, attention should be paid to consumers’ psychological benefits (Hartmann & Apaolaza-Ibáñez, 2012). From the perspective of social psychology, consumers’ moral motives depend on social regulations that significantly influence green consumption (Nyborg et al., 2006). Therefore, the factors that arouse such motives should be of interest to researchers.

Green advertising tends to focus on altruistic motives, and encouraging consumers to have positive environmental behaviors. The values of altruism and concerns about the environment and are the key factors of green consumption (Iyer, Banerjee, & Gulas, 1994; Mostafa, 2009). In addition to consumers’ motives, many researchers have emphasized the functions of environmental knowledge and information appeal, because consumers’ comprehension of marketing information will be influenced by special knowledge, which then determines their judgment (Celsi & Olson, 1988). Offering information is one of the main strategies in the research, experimentation, interpretation, and promotion of environmental behaviors. Thus, information involvement in general behavior is considered the key variance factor (Bator & Cialdini, 2000). Increased environmental value, the enhancement of educational functions, an emphasis on gaps between green actions and nongreen actions (Polonsky, 2011), the development of consumers’ environmental knowledge, increased cognition regarding overall environmental systems, facilitating the recognition about the environment, and the discovery of the keys to environmental problems can enhance the overall environmental system (Mostafa, 2009). In practice, adopting methods that match consumers’ thinking is conducive to the acceptance of brand as well as enhancing the customers’ purchase intention and motivating brand selection (Ruiz & Sicilia, 2004). Moreover, strengthening the environmental appeal and functions, and using advertising to change consumers’ impressions, can also increase the market share of green consumption (Nyborg et al., 2006).

In empirical studies it has been found that increased knowledge can enhance environmental behaviors. Rokicka (2002) investigated male and female adults living in Poland, and found that a large amount of ecological knowledge will
result in more environmentally friendly behaviors. Basing their study on the theory of planned behavior (TPB), Litvine and Wüstenhagen (2011) investigated consumer attitudes toward green electricity generation. They suggested that price is not the only information obstacle for purchase intention. The increased benefits through purchasing green power and the communication of problems are the key factors in electricity retail and consumer inertia. More importantly, in comparison to consumers without information, those with information will have increased intention to purchase green power.

The increase of green consumption and use rates can be achieved through workshops, group discussions, media, specific information, and experimental tasks (Bator & Cialdini, 2000). In other words, consumers’ comprehension of green information will influence their consumption attitude, and their concerns regarding the environment will determine their preferences and demands for green products. Thus, in this study we treated GM as one of the variables of the consumers’ attitude. Based on the above, the following hypotheses were proposed:

**Hypothesis 2:** Receiving GM will produce a greater advertising effect than will not receiving GM.

**Hypothesis 2a:** Receiving GM will produce a more positive advertising attitude than will not receiving GM.

**Hypothesis 2b:** Receiving GM will produce a more positive brand attitude than will not receiving GM.

**Hypothesis 2c:** Receiving GM will lead to a greater purchase intention than will not receiving GM.

Green consumer behavior will be influenced by concerns for the environment (Shrum, et al., 1995). According to Lee (2008), there are seven factors that predict green consumption: social influence, environmental concern, care about self-image, self-awareness of environmental responsibility, environmental behavior with a perceived benefit, environmental attitude, and the perceived seriousness of environmental problems. Environmental organizations and natural resource institutions often adopt educational and promotional strategies to encourage environmental behaviors. These methods include offering various types of important information (Bator & Cialdini, 2000). Thus, in this study we treated the GM as the moderator of the consumers’ green consumption.

Abrahamse, Steg, Vlek, and Rothengatter (2005) suggested that the moderation of GM should be based on the increased awareness of environmental problems, behavioral outcomes, and personal responsibilities. For example, the purchase of dishwashing liquid is not a high-risk issue. Thus, according to the principle of common products, positively framed advertising will have a more positive effect in this case. However, if the effect of GM is enhanced, as suggested above, green consumer purchases will be influenced by environmental concerns that
can even predict green consumption (Lee, 2008; Shrum et al., 1995). Thus, we reasoned that reminding consumers of the seriousness of environmental problems could influence FE. In other words, with regard to GM, consumers’ preference for negative framing will increase, resulting in consistent advertising effects of both positive and negative FE. Based on the above, we proposed the following hypotheses:

**Hypothesis 3**: GM will influence consumers’ reaction toward FE.

**Hypothesis 3a**: For consumers who do not receive GM, positively framed green advertising will lead to a more positive advertising attitude. Consumers who receive GM will have the same advertising attitude toward both positively and negatively framed green advertising.

**Hypothesis 3b**: For consumers who do not receive GM, positively framed green advertising will lead to more positive brand attitudes. Consumers who receive GM will have the same attitude toward positively and negatively framed green advertising of a brand.

**Hypothesis 3c**: For consumers who do not receive GM, positively framed green advertising will lead to a more positive purchase intentions. Consumers who receive GM will have the same purchase intentions toward positively and negatively framed green advertising.

### Method

**Research Design and Participants**

In this study we tested the hypotheses by experimentation. Specifically, we invited the participants to watch green product advertising and then measured their reactions. The experiment was based on a 2 (FE: positive frame vs. negative frame) x 2 (GM: with vs. without) between-subject factorial design. The dependent variables were advertising attitude, brand attitude, and purchase intention. Using convenience cluster sampling, we invited students at a university in southern Taiwan to be the participants. They were randomly distributed into four experimental groups. There were 210 participants aged 18 to 22 years, and each scenario was tested with between 20 and 30 participants. After eliminating invalid samples, there were 167 valid survey forms.

**Stimulus**

The design of the stimulus for positively and negatively framed advertising was based on manipulating the copywriting. In order to avoid different effects caused by varying visual effects, the images and advertising design were consistent. As found in the preparatory research for this study, among current environmental products in Taiwan, some dishwashing liquid products use positively framed descriptions, but others adopt negatively framed descriptions. Thus, dishwashing
liquid was chosen as the target product of this study. We used the dishwashing liquid advertising from the Melaleuca Company after removing the name of the brand and the background, and after redesigning the advertising to meet the needs of this study. In order to avoid the moderation of other factors, different slogans were adopted for the two advertisements, although the subtitles and frames remained the same.

Independent Variables

Advertising framing. Before selecting the slogans of framing, we conducted a pretest. We first collected samples of environmentally friendly dishwashing liquid advertising from the Internet and generalized them into four slogans for each of the positively and negatively framed advertising. The pretest participants were the students from a university in southern Taiwan (N = 42). The pretest was designed to find out how the participants perceived the positively framed or negatively framed advertising information manipulated in the experiment. Measurement was based on a 7-point Likert scale from 1 = strongly disagree to 7 = strongly agree.

According to the results, No.7: “Green consumption and more environmental life” was selected as the representative of positively framed advertising slogans, and No.4: “You eat what you use to clean your microwave oven” was the representative of negatively framed advertising slogans. The means of the positively and negatively framed advertising slogans showed significant differences (M_7 = 1.52, SD = 1.348; M_4 = 5.19, SD = 1.864, t_{7-4}(42) = 9.598, p < .001).

Green message. For this study we manipulated the information by offering a GM. Data of the GM experiments were obtained from the pretest. Thus, the pretest participants not only evaluated the slogans of positively and negatively framed advertising but also watched the environmental films provided by us. There were three environmental films: *An Inconvenient Truth* (by Al Gore), ±2°C (by Sisy Chen), and *Environmental Protection in Taiwan* (by the Environmental Protection Administration of Taiwan). The Environmental Protection Administration is the highest environmental authority in Taiwan, thus, the film was representative for this study. Al Gore’s documentary has attracted global attention, and Sisy Chen’s documentary has been widely discussed in Taiwan. The three films were, therefore, influential as experimental materials for GMs.

In the survey, the items were listed as: “It fully explains the current environmental conditions”, “It draws attention to environmental problems”, and “It enhances the concern about environmental problems” and these were used to measure the participants’ perceptions of GM. Measurement was based on a 7-point Likert scale from 1 = strongly disagree to 7 = strongly agree. After calculating the means, it was found that ±2°C had the highest score and showed a
significant difference from the other two films ($M_1 = 5.25, SD = 1.509; M_2 = 5.87, SD = 1.403; M_3 = 4.62, SD = 1.626, t^{1-2} (42) = -3.638, p < .01; t^{2-3} (42) = 5.003, p < .001$). Thus, $±2°C$ was used as the experimental material for GM in this study.

**Dependent Variables**

The communication effects of advertising refer to consumers’ perceptions of the product effects based on being exposed to advertising, and they include advertising performance, brand attitude, and purchase intention investigation (Wang, Hsieh, & Chen, 2002). In this study the advertising effect was the communication effect of advertising performance, which is a test of the consumers’ perception of brand and product effects after being exposed to advertising. Advertising effects can be observed from the aspects of advertising attitude, brand attitude, and purchase intention.

For the advertising attitude survey items, the questionnaires developed by Cheng and Wu (2010) and Joseph, Spake, and Finney (2008) were modified to meet the needs of this study. The items used to measure advertising attitude included: “easy to understand”, “lively performance”, “pleasant”, “like”, and “matches needs”. The brand attitude survey items was based on the research of MacKenzie, Lutz, and Belch (1986) and Wang et al. (2002). The items included: “good feelings”, “positive impressions”, and “positive comments”. The purchase intention survey items were revised from the scale developed by Cheng and Wu, and the items were: “worthy of purchase”, “will recommend it to families and friends”, and “plan to purchase”. The scoring was based on a 7-point Likert scale, with scores ranging from $1 = \text{strongly disagree}$ to $7 = \text{strongly agree}$.

In this study, the advertising attitude items, the brand attitude items, and the purchase intention items were designed by referring to related literature. Thus, the scales had reliable content validity. We also tested the internal consistency of the data, and the results indicated that Cronbach’s $\alpha$ for advertising attitude was .897, that for brand attitude was .938, and that for purchase intention was .926, all of which were at least .70 (high reliability), proving that the data obtained by this study were reliable (Nunnally, 1978).

**Procedure**

We described the research purposes to the participants before distributing the survey forms, which consisted of three sections: (1) the survey description and basic information, (2) manipulation of the GM, and (3) scales for testing the participants’ attitudes. The first and third sections were the same for all groups. In the second section, the group receiving GM watched the selected environmental films, but the group not receiving GM did not view the films, instead immediately watching the advertising in the third section.
In order to prevent the participants from guessing the purpose of the experiment, we included genuine advertising for actual products (notebook computers and shampoo), in addition to the dishwashing liquid advertisement. The researchers presented the participants with gifts after they had completed the surveys. The entire experiment lasted for between 15 and 20 minutes.

### Research Results and Analysis

#### Test of Individual Factors on Advertising Effect

In this study we used two-way analysis of variance (ANOVA). According to the results, there was no interaction between GM and FE. The effects of GM and FE were partially and significantly different.

According to the findings, positively and negatively framed advertising attitudes and brand attitudes were significantly different. In addition, attitudes towards positively framed advertising were significantly more positive than were those for negatively framed advertising ($M$ advertising attitude = 24.81 vs. 22.55, $F(1, 167) = 6.809$, $p < .05$). Brand attitude for positively framed advertising was significantly more positive than was that for negatively framed advertising ($M$ brand attitude = 20.53 vs. 18.43, $F(1, 167) = 7.285$, $p < .01$). Purchase intention for both positive and negative frames was not significantly different. Thus, H1a and H1b were supported, but H1c was not.

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Advertising attitude $F$</th>
<th>Brand attitude $F$</th>
<th>Purchase intention $F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>GM</td>
<td>8.951**</td>
<td>4.101*</td>
<td>.558</td>
</tr>
<tr>
<td>FE</td>
<td>6.809*</td>
<td>7.285**</td>
<td>3.684</td>
</tr>
<tr>
<td>GM×FE</td>
<td>.609</td>
<td>.098</td>
<td>.016</td>
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*Note.* *$p < .05$, **$p < .01$, ***$p < .001$.

Results in Table 1 show that GM had a significant effect on advertising attitudes and brand attitudes. However, after comparing the means, we found that the scores of the group that received GM were lower than were those of the group that did not receive GM ($M$ advertising attitude = 23.13 vs. 24.89, $F(1, 167) = 8.951$, $p < .01$; $M$ brand attitude = 18.63 vs. 20.2, $F(1, 167) = 4.101$, $p < .05$). GM had no significant effect on purchase intentions. In H2 we predicted that GM would enhance advertising effects, and the result demonstrated that after receiving GM, the participants’ scores for advertising attitudes and brand attitudes were significantly lower than were those for the group that did not receive GM. Thus, H2a, H2b, and H2c were not supported.
Test of FE and GM on Advertising Effects

As the interaction between FE and GM was nonsignificant, in order to validate the hypotheses, we tested the simple main effect of the two dependent variables.

Table 2. ANOVA of the Simple Main Effect of FE and GM

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Advertising attitude</th>
<th>ANOVA</th>
<th>Purchase intention</th>
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<tr>
<td></td>
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<td></td>
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<tr>
<td>FE</td>
<td></td>
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<tr>
<td>With GM</td>
<td>2.311</td>
<td>2.339</td>
<td>1.473</td>
</tr>
<tr>
<td>Without GM</td>
<td>4.973*</td>
<td>5.618*</td>
<td>2.285</td>
</tr>
<tr>
<td></td>
<td>(Positive &gt; negative)</td>
<td>(Positive &gt; negative)</td>
<td></td>
</tr>
<tr>
<td>GM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive frame</td>
<td>4.865*</td>
<td>3.086</td>
<td>.448</td>
</tr>
<tr>
<td></td>
<td>(with &lt; without)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative frame</td>
<td>4.055*</td>
<td>1.340</td>
<td>.172</td>
</tr>
<tr>
<td></td>
<td>(with &lt; without)</td>
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</tbody>
</table>

Note. * p < .05, ** p < .01, *** p < .001.

According to the results shown in Table 2, GM slightly influenced advertising attitude and brand attitude. Without GM, the participants’ attitudes to advertising and brand showed significant difference when they received positive frame and negative frame advertising ($MS_{advertising\ attitude} = 133.373, F = 4.973, p < .05; MS_{brand\ attitude} = 118.759, and F = 5.618, p < .05$). After the participants received GM, there was no significant difference to their advertising attitudes and brand attitudes for positively framed and negatively framed advertising ($MS_{advertising\ attitude} = 82.976, F = 2.311, p > .05; MS_{brand\ attitude} = 69.334, F = 2.339, p = .05$). Thus, the participants’ advertising attitude and brand attitude were influenced by the moderating effect of GM. The group not receiving GM tended to prefer positively framed green advertising ($M_{advertising\ attitude} = 26.17$ vs. 23.69; $M_{brand\ attitude} = 21.4$ vs. 19.07). Without GM, the participants still preferred positively framed green advertising, but their attitude was not significantly different ($M_{advertising\ attitude} = 23.36$ vs. 21.33; $M_{brand\ attitude} = 19.59$ vs. 17.74). Thus, H3a and H3b were supported.

Regardless of whether or not the participants received GM, their scores for purchase intentions regarding positive and negative frames were not significantly different (positive frame: $MS_{purchase\ intention} = 21.273, F = 1.473, p > .05$; negative frame: $MS_{purchase\ intention} = 29.649, F = 2.285, p > .05$). Thus, H3c was partially supported.

As shown in Table 2, with a positive frame, only advertising attitude had a significant difference ($MS_{advertising\ attitude} = 159.415, F = 4.865, p < .05$). After comparing the means, we found that the group that did not receive GM,
in comparison to the group that did receive GM, had more positive results \( (M_{\text{advertising attitude}} = 26.17 \text{ vs. } 23.36) \). With negative framing, there was a significant difference in the score for advertising attitude \( (M_{\text{S advertising attitude}} = 120.539, \ F = 4.055, p < .05) \). The comparison of the means revealed that the group that did not receive GM, in comparison to the one that did receive GM, had more positive advertising attitudes \( (M_{\text{advertising attitude}} = 23.69 \text{ vs. } 21.33) \). FE had no significant difference on brand attitude or purchase intention. Thus, whether or not advertising was presented in positive or negative frames, and with or without GM, the participants’ responses yielded similar results.

**Discussion**

In this study we probed into the influences of FE and GM on green advertising effects. We found that, according to the responses from our participants, consumers prefer positively framed green product advertising over negatively framed advertising. This finding was consistent with that of Smith (1996) and Chang (2008), who suggested that positively framed advertising information easily and actively influences consumers, who will then have better opinions on this advertising. When encountering positive frames that are based on gaining something, individuals prefer concise advertisements, and they will have risk-aversive attitudes (Tversky & Kahneman, 1981). In other words, compared with other products of the same type, although green products are environmentally friendly, they are not products associated with issues of life and security, such as health problems (Rothman et. al., 1993; Smith, 1996). Thus, although the safety of dishwashing liquid is related to physical health, consumers prefer green product advertising, and this aspect should be noted by green marketing companies.

With the effect of GM, the outcome is different. We predicted that GM would result in more positive advertising effects. However, in this study the finding indicates the opposite. The participants who received GM had significantly less positive advertising attitudes and brand attitudes than did those who did not receive GM. In other words, GM reduced the positive effect of advertising. The literature emphasizes the effects of messages, and researchers agree that offering information is a strategy to enhance environmental behavior, because consumers can recognize the key of environmental problems, which will enhance the overall environmental system (Bator & Cialdini, 2000; Celsi & Olson, 1988; Litvive & Wüstenhagen, 2011; Mostafa, 2009; Polonsky, 2011). The findings in this study indicate that GM influenced the participants in that the effects of advertising were less positive. In this study we provided films relating to environmental issues. After the participants watched the films, they might have become more aware regarding green advertising. Thus, the participants who received
GM had less positive advertising attitudes and brand attitudes than did those who did not receive GM. The seriousness of environmental problems is well known. Consumer attitudes are affected by GM. Therefore, designers of green advertising should pay more attention to their promotional strategies in order for their advertising to be accepted by consumers.

We predicted that FE and GM would influence advertising effects, and this was partially supported. We found that GM lowered the participants’ preference for both positive and negative frames. The difference between preference for positive and negative frames became insignificant. In other words, the participants who did not receive GM preferred positively framed advertising, and those who received GM had similar attitudes regarding positively and negatively framed advertising. Chang (2008) and Smith (1996) agreed that, regarding the advertising effects of positive framing for common products, the purchase of dishwashing liquid is not a high-risk issue. We found that even when dishwashing liquid is environmentally friendly, positively framed advertising was preferred by our participants. With GM, consumers are concerned about the environment, and thus, it determines their preference and creates demand for green products, which then influences their consumption attitudes. The effect of negatively framed advertising is increased, while advertising attitudes and brand attitudes of positive and negative frames are consistent. This was consistent with previous literature. In other words, green consumers’ purchases will be influenced by environmental concerns, and this concern can be used to predict green consumption behavior (Lee, 2008; Shrum et al., 1995). The moderation of GM should be based on an increased awareness of environmental problems, behavioral outcomes, and personal responsibilities (Abrahamse et al., 2005). Thus, GM, indeed, influences the consumers’ perception of psychological benefits.

In this study, the measurement of advertising effect was based on advertising attitude and brand attitude, as well as purchase intention. As FE and GM showed no significant influence on purchase intention, H1c and H2c were not supported, while H3c was partially supported. However, for both positive and negative framing, and whether or not GM was received, the participants’ purchase intentions showed no significant differences, which suggested that consumers’ mental state is complicated. From the forming of advertising attitudes to the formation of purchase intention, there are many issues requiring further study.

There were limitations in this study as it was conducted with a group of participants who were all in the same age group. Although the measures appeared to be valid in this study, further validating work must use different age samples. In addition, currently, in most advertising positively framed descriptions are used. However, some advertisements attract consumers through both negative and positive frames. In this study we did not develop the hypotheses or explore measures for different types of framing. As set out in the analysis, regarding
different frames of advertising, and with or without GM, only advertising attitude showed a significant difference. In order to avoid the moderation of other factors, we adopted different slogans for positively and negatively framed advertising, but the other content and layout designs remained the same. Thus, the examples we used to obtain responses from the participants in our study differed from those of actual advertising designs. Future researchers should treat advertising design as the research stimulus in order to match the research results with reality. This could serve as a reference for future studies. Finally, we recognized the factors of consumer judgments of green consumption and the influences of FE and GM on green advertising effects, thus supporting the importance of GM in green marketing.

References


