

# Impacts of Personal Involvement and Need for Cognition on the Effectiveness of Green Advertising: From the Perspective of Emotionally-Framed Appeals

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## **Abstract**

*This study used a mixed-participant quasi-experiment to explore the effects of personal involvement and need for cognition (NFC) on the effectiveness of green advertising from the perspective of emotionally-framed appeals. A convenience sampling of 270 mass communication undergraduate students from a university in Taiwan was recruited for this work.*

*Through one-way ANOVA and t-test analyses, the impacts of personal involvement and NFC on the effectiveness of green advertising with emotional appeals (positive- versus negative-emotional appeals) were confirmed. Further, negative-emotional appeals were found to be more effective than positive ones with regard to environmental protection issues.*

**Keywords:** Involvement; Need for cognition; Advertising effectiveness; Advertising attitude; Behavioral intentions

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## Introduction

Since the advertising effectiveness of emotional appeals has been confirmed in many empirical studies, especially with regard to the formation of attitudes and behavioral intentions (e.g. Malhotra, 2005; Yoo and MacInnis, 2005; Nesbitt, Manchanda, Smith, and Huhmann, 2011), an increasing number of green advertising campaigns are made using emotional appeal frames to enhance people's environmental awareness and encourage them to protect the environment.

Some studies (Edell and Burke, 1987; Cotte, Coulter, and Moore, 2005) argue that positive-emotional appeals are more effective than negative ones, although others, such as Keller, Lipkus, and Rimer (2002) and Isen (1984), claim the opposite. With the ultimate aim of achieving more effective communication with regard to environmental issues, this study examines which kind of emotional appeal (positive versus negative) is the most appropriate for the green advertising. This work also examines how the personal characteristics of involvement and need for cognition (NFC) impact the effectiveness of such advertising. The following five hypotheses are examined in this work:

H1. Personal involvement has significant impacts on the effectiveness of green advertising in terms of cognitive attitude, affective attitude toward ads, and behavioral intentions, in positive-emotional appeal frames.

H2. Personal involvement has significant impacts on the effectiveness of green advertising in terms of cognitive attitude, affective attitude toward ads, and behavioral intentions, in negative-emotional appeal frames.

H3. Need for cognition has significant impacts on the effectiveness of green advertising in terms of cognitive attitude, affective attitude toward ads, and behavioral intentions, in positive-emotional appeal frames.

H4. Need for cognition has significant impacts on the effectiveness of green advertising in terms of cognitive attitude, affective attitude toward ads, and behavioral intentions, in negative-emotional appeal frames.

H5. There are significant differences between the effectiveness of positive- and negative-emotional appeal frames in green advertising.

## Literature Review

### *Ads Effectiveness: Positive versus Negative Emotionally-Framed Appeals*

Kotler (1997) noted that emotional appeals are used in advertising to stir up positive or negative emotions, and thus to increase purchase intentions among viewers. When comparing the advertising effectiveness between positive- and negative-emotional appeals, some studies, such as Keller, Lipkus, and Rimer (2002) and Isen (1984), have suggested that negative-emotional appeal frames are more effective than positive ones in influencing viewers' attitudes toward advertising, since negative emotions cause people to process the information they are presented with in a more thorough and systematic manner. As Henthorne, Latour, and Natarajan (1993) and Shiv, Edell, and Payne (1997) noted, some advertising aims to evoke anxiety and fear, thus motivating viewers to take actions to reduce these unpleasant emotions, changing their resulting attitudes and behaviors. Huang (1999) even claimed that the greater use of fear appeal in advertising can lead to better attitudes toward the advertising among viewers. Lin and Huang (2005) also found that the negative-emotional appeal of fear had positive effects on attitude, recall, and purchase intention. They further indicated that the use of such advertising could be especially effective with regard to certain social issues.

In contrast, Hyman and Tansy (1990) reported that positive-emotional appeals can lead to better outcomes with regard to attitudes and recall, than negative ones. Many studies (e.g., Edell and Burke, 1987; Cotte, Coulter, and Moore, 2005) have further reported that positive-emotional appeals produce more favorable attitudes towards the focal advertising and brands, and that the resulting positive emotions increase behavioral intentions, such as purchase intentions, while negative emotions did the opposite. With regard to AIDS, Hsu (1999) found more positive effects with regard to favorable attitudes and behavioral intentions in relation to advertising that used positive-emotional appeals rather than negative ones. Similar results were also found for older adults in a study on the advertising effectiveness by Nesbitt, Manchanda, Smith, and Huhmann (2011).

### ***Involvement and Advertising Effectiveness***

The concept of involvement refers to consumer perceptions with regard to the personal relevance of an object, activity, or event (Bloch and Richins, 1983). Celsi and Olson (1988) suggested that the perceived personal relevance of a product is determined by the activated cognitive structure of the means-end associations that link people's knowledge about a product's attributes and benefits with their self-knowledge about important needs, goals, and values. Zaichkowsky's (1985) Personal Involvement Inventory (PII) can be used to indicate the overall level of consumer involvement with a product. In the PII, consumers give direct ratings of their interest in a product, or the perceived importance of a product. Zaichkowsky (1986) further mentioned that higher-involvement consumers usually search for product relevant information in a more active manner, and have a better understanding of product attributes than lower-involvement consumers.

Personal involvement is also an important factor that has impacts on the effectiveness of advertising in terms of cognitive attitude, affective attitude toward the advertising, and behavioral intentions. Individuals with a higher level of involvement usually show a higher level of cognitive attitude and behavioral intentions toward the focal advertising than individuals with a lower level of involvement (Zaichkowsky, 1986). Meanwhile, Petty and Cacioppo's (1986) Elaboration Likelihood Model (ELM) of persuasion shows that attitudes that have been formed under high involvement conditions (when there is central route to persuasion) have a strong impact on behavior, whereas attitudes formed under lower levels of involvement (a peripheral route to persuasion) are less influential. Kokkinaki and Lunt (1999) also revealed that subjects in the high involvement condition paid more attention to the focal advertising and concentrated more on the written messages than did subjects in the moderate involvement condition. In addition, the high involvement subjects paid more attention to the advertising, as though they were considering buying the focal products, than the moderate involvement subjects did.

Moore and Harris (1996) further suggested that higher involvement individuals will have a more favorable affective attitude toward positive-emotional appeals than negative ones. Lin, Fu, and Lee (2011) also reported that subjects in the high involvement condition experienced greater effects with regard to brand attitude and purchase intention when viewing ads, and paid more attention to the overall content, as well as the written messages, than subjects in the lower involvement condition. However, Lin and Huang (2005) mentioned that although subjects in the high involvement condition showed more positive effects with regard to affective attitude and recall toward advertising than those in low involvement condition, the level of personal involvement had no significant effect on purchase intention.

In contrast, a number of studies (e.g. Robertson, 1976; Korgaonkar and Moschis, 1982; Lee and Mou, 2012) indicate that individuals with a lower level of involvement tend to be more easily affected by advertising, and thus have stronger purchase intentions, than individuals with a higher level of involvement. This is because individuals with a higher level of involvement are generally more critical towards to content of ads, and more resistant toward the related messages.

### ***Need for Cognition (NFC) and Advertising Effectiveness***

The need for cognition (NFC) is the tendency to derive intrinsic enjoyment from engaging in effortful information processing (Cacioppo, Petty, Kao, and Rodriguez, 1986). People scoring high on the NFC Scale intrinsically enjoy thinking and engaging in complex tasks, whereas those scoring low on it tend to avoid cognitive work that requires any significant effort (Cacioppo and Petty, 1982). Cacioppo, Petty, Kao, and Rodriguez (1986) also found that high NFC individuals reported expending more cognitive effort in evaluating messages, and that verbal intelligence and NFC accounted for independent sources of variance in message recall and persuasion. In addition, Petty, Cacioppo, and Schumann (1983) found the attitudes of individuals exposed to an advertisement under relatively high situational motivation, in terms of NFC, were more influenced by the quality of the attribute claims in an ad than were individuals exposed to the same material under low motivation conditions. On the other hand, subjects in the low motivation conditions were more influenced by the celebrity status of the product endorsers than were those in the high motivation conditions.

NFC has also been reported to be an important factor in predicting advertising effectiveness (Haugtvedt, Petty, and Cacioppo, 1992). Nesbitt, Manchanda, Smith, and Huhmann (2011) showed that high NFC individuals reported greater effects with regard to personal involvement, recall, and attitude toward advertising. In a study of anti-smoking commercials, Hsu and Wang (2007) further noted that NFC has an impact on advertising attitude and behavioral intentions.

## **Research Method**

### ***Research Design***

This study aimed to explore the impacts of involvement and NFC on the advertising effectiveness of cognitive attitude, affective attitude, and behavioral intentions toward the six green advertising films with two different kinds of emotional appeal frames (positive and negative). The two independent variables examined in this study were personal involvement and NFC. Personal involvement was measured as high, moderate, or low. The other independent variable, the participant's need for cognition (NFC), was also measured as high, moderate, or low. Regarding the dependent variables, the participants' cognitive attitude, affective attitude, and behavioral intentions toward the target films, were used to examine the effectiveness of the green advertising.

This study was conducted as a mixed-participant quasi-experiment. While considering the counterbalance effect during the experiment, the participants were assigned into two experimental groups (Groups A and B) to view positive- and negative-emotional appeal advertisements, although each group saw them in the opposite sequence. In the first section of experiment, the participants in Group A were assigned to view three films promoting environmental awareness using positive-emotional appeals, and then another three films using negative-emotional appeals in the second section. The participants completed a questionnaire immediately after viewing the films in each section. The participants in Group B followed the same procedure, but saw the films with negative-emotional appeals before those with positive appeals.

### ***Advertising Stimuli***

As noted above, six green films were prepared based on two kinds of emotional appeal frames: positive and negative, based on Holbrook and Batra's (1987) Standardized Emotional Profile (SEP), which has been widely used in experimental studies to assess emotional responses to print and television ads. The positively framed appeals focused on optimistic and upbeat emotions associated with the issue of environmental protection, while negatively framed ones focused on problems due to not protecting the environment. Each film was about 20 seconds long.

### ***Participants***

Convenience sampling was adopted in this study, and a total of 270 undergraduate mass communication students from a university in Taiwan were recruited and given a course credit for their efforts. Demographic information for the entire participant pool indicated that a majority of participants were female (63.7%), and that over 99% were between the ages of 18 to 23 years.

### ***Measures***

Four instruments were used to examine the hypotheses in this study, the Personal Involvement Inventory (Zaichkowsky's, 1985), Need for Cognition Scale (Petty, Cacioppo, & Kao, 1984), Attitude toward the Ads Scale (Mackenzie, Lutz, and Belch, 1986), and Behavioral Intentions Scale (Szczepanski, 2006).

### ***Involvement***

Zaichkowsky's (1985) widely used Personal Involvement Inventory (PII) was adopted to measure the participants' involvement. The PII indicates the level of consumers' overall involvement with the focal product, service or issue. With this, the participants gave direct ratings of their interest in the issues raised in the films, or their perceived importance, using a seven-point, 18-item, Likert scale with endpoints of (1) strongly disagree and (7) strongly agree. Based on their PII scores, the participants were then assigned to one of three groups: high (above 27% total scores of PII), moderate, and low involvement (below 27% total scores of PII).

### ***Need for cognition (NFC).***

The shortened version of the Need for Cognition Scale (Petty, Cacioppo, & Kao, 1984) was utilized in the present study. With this, the participants were asked to read a list of 18 different descriptions of thinking behavior. After reading each description, the participants rated how characteristic that statement was of their preferences with regard to thinking, on a seven-point, 18-item, Likert scale with endpoints of (1) strongly disagree and (7) strongly agree. Based on their NFC scores, the participants were then assigned to one of three groups: high (above 27% total scores of NFC), moderate, and low need for recognition (below 27% total scores of NFC).

### ***Advertising effectiveness***

Advertising effectiveness was measured using three subscales. In the first of these, examining cognitive attitude toward advertising, a five-item, seven-point semantic differential items scale, adapted from the Attitude toward the Ads Scale (Mackenzie, Lutz, and Belch, 1986), to measure the participants' understanding of the texts used in the films.

Affective attitude toward advertising was also measured by a five-item, seven-point semantic differential items scale, adapted from the Attitude toward the Ads Scale (Mackenzie, Lutz, and Belch, 1986), to examine the extent of the participants' favorable attitudes toward the films.

Participants' behavioral intentions were measured by a six item, seven-point Likert scale with endpoints of (1) strongly disagree and (7) strongly agree, adapted from Szczepanski's (2006) Behavioral Intentions Scale, to examine the intensity of their behavioral intentions after viewing the films.

### **Data Analysis**

Factor analysis was undertaken to examine the internal validity of the items in terms of the Personal Involvement Inventory (PII), the Need for Cognition Scale, the Attitude toward the Ads Scale, and the Behavioral Intentions Scale. The Eigenvalue and the total 18-item variance explained by the level of involvement were 9.076 and 50.422%, respectively. The Eigenvalue and the total 18-item variance explained by the need for cognition were 4.681 and 52.015%, respectively. The Eigenvalue and the total 10-item variance explained by the Attitude toward the Ads Scale were 5.405 and 54.053%, respectively. The Eigenvalue and the total six-item variance explained by the Behavioral Intentions Scale were 4.644 and 77.404%, respectively.

The reliability of the four scales was checked using Cronbach's alpha. The Cronbach's alphas for the Personal Involvement Inventory (PII), the Need for Cognition (NFC) Scale, the Attitude toward the Ads Scale, and the Behavioral Intentions Scale were 0.874, 0.883, 0.765, and 0.941, respectively, thus showing good reliability.

With regard to H1 to H4, ANOVA was conducted to assess the impacts of involvement and NFC on advertising effectiveness in terms of the participants' cognitive attitudes, affective attitudes, and behavioral intentions toward the green advertising films with either positive- or negative-emotional appeals. A paired-sample t-test was used to assess H5 and determine the differences in advertising effectiveness between the positive- and negative-emotional appeal frames.

### **Results**

#### ***Impact of Involvement on the Effectiveness of Green Advertising with Positive Emotional Appeals***

H1 was supported, based on the results of a one-way ANOVA test. The results (see Table 1) indicated that different levels of involvement had significant effects on all the three aspects of advertising effectiveness, i.e. cognitive attitude toward ads ( $F=16.59$ ,  $P=.000$ ), affective attitude toward ads ( $F=11.57$ ,  $P=.000$ ), and behavioral intentions ( $F=63.36$ ,  $P=.000$ ), in relation to the green advertising films using positive-emotional appeal frames.

Regarding the advertising effectiveness of cognitive attitude, the results of a post-hoc test showed that the high-involvement individuals ( $M=29.53$ ) had a higher level of cognitive attitude toward the advertising with positive-emotional appeals than those with moderate ( $M=27.00$ ) and low involvement ( $M=25.60$ ). However, there was no significant difference in cognitive attitude between the moderate- and low-involvement individuals.

Regarding the effectiveness of affective attitude, Table 1 shows that high-involvement individuals ( $M=30.21$ ) reported a higher affective attitude toward the green ads with positive-emotional appeal frames than those with moderate ( $M=27.26$ ) and low ( $M=25.21$ ) involvement. However, there was no significant difference in affective attitude between the moderate- and low-involvement individuals.

With regard to the advertising effectiveness of behavioral intentions, high-involvement individuals ( $M=36.26$ ) were found to have a stronger behavioral intention toward the green ads with positive-emotional appeal frames than the moderate involvement individuals ( $M=31.24$ ). The ads effectiveness of behavioral intentions was also greater for moderate-involvement individuals ( $M=31.24$ ) than low-involvement ones ( $M=26.44$ ). In other words, individuals with a higher level of involvement showed a stronger behavioral intention toward the green advertisements with positive emotional appeals.

**Table 1. ANOVA analysis for the effects of involvement on the advertising effectiveness of green ads with positive-emotional and negative-emotional appeals**

Advertising Effectiveness	Level of Involvement	n	M	Std.	F	Sig.	Post Hoc
Cognitive Attitude (viewing positive-emotional appeal)	Low	73	25.60	4.48	16.59	.000	High >
	Moderate	121	27.00	3.98			Moderate
	High	76	29.53	4.41			
	Total	270	27.33	4.48			High > Low
Affective Attitude (viewing positive-emotional appeal)	Low	73	25.21	4.70	11.57	.000	High >
	Moderate	121	27.26	4.23			Moderate
	High	76	30.21	9.82			
	Total	270	27.53	6.65			High > Low
Behavioral Intentions (viewing Positive-emotional Appeal)	Low	73	26.44	5.64	63.36	.000	High >
	Moderate	121	31.24	5.03			Moderate >
	High	76	36.26	5.47			Low
	Total	270	31.36	6.45			
Cognitive Attitude (viewing negative-emotional appeal)	Low	73	26.81	4.93	21.67	.000	High >
	Moderate	121	28.47	4.05			Moderate >
	High	76	31.37	4.06			Low
	Total	270	28.84	4.63			
Affective Attitude (viewing negative-emotional appeal)	Low	73	26.21	5.09	16.06	.000	High >
	Moderate	121	28.02	4.20			Moderate >
	High	76	30.37	4.38			Low
	Total	270	28.19	4.75			
Behavioral Intentions (viewing negative-emotional appeal)	Low	73	26.84	5.19	64.27	.000	High >
	Moderate	121	32.31	5.30			Moderate >
	High	76	36.67	5.42			Low
	Total	270	32.06	6.43			

***Impact of Involvement on the Effectiveness of Green Advertising with Negative Emotional Appeals***

H2 was also supported, based on a one-way ANOVA test. The results (see Table 1) indicate that personal involvement had significant impacts on all three aspects of advertising effectiveness, i.e. cognitive attitude ( $F=21.67$ ,  $P= .000$ ), affective attitude ( $F=16.06$ ,  $P= .000$ ), and behavioral intentions ( $F=64.27$ ,  $P= .000$ ), toward the green advertising films with negative-emotional appeals.

With regard to the advertising effectiveness of cognitive attitude, the results of a post-hoc test show that high-involvement individuals ( $M=31.37$ ) had a higher level of cognitive attitude toward the green films with negative-emotional appeal frames than the moderate-involvement individuals ( $M=28.47$ ). The advertising effectiveness of cognitive attitude was also higher for moderate-involvement individuals ( $M=28.47$ ) than low-involvement ones ( $M=26.81$ ). In other words, individuals with a higher level of involvement showed a higher level of cognitive attitude toward the green films with negative emotional appeals.

With regard to the advertising effectiveness of affective attitude, the results of a post-hoc test show that high-involvement individuals ( $M=30.37$ ) had a higher level of affective attitude toward the green ads films with negative-emotional appeal frames than moderate-involvement individuals ( $M=28.02$ ). The advertising effectiveness of affective attitude was also higher for moderate-involvement individuals ( $M=28.02$ ) than low-involvement ones ( $M=26.21$ ). In other words, individuals with a higher level of involvement showed a higher level of affective attitude toward the films with negative emotional appeals.

Regarding the advertising effectiveness of behavioral intentions, high-involvement individuals ( $M=36.67$ ) reported a stronger behavioral intention toward the green ads films with negative-emotional appeal frames than moderate-involvement individuals ( $M=32.31$ ). The advertising effectiveness of behavioral intentions was also higher for moderate-involvement individuals ( $M=32.31$ ) than low-involvement ones ( $M=26.84$ ). In other words, individuals with a higher level of involvement had a stronger behavioral intention toward the green films with negative emotional appeals.

### ***Impact of Need for Cognition (NFC) on the Effectiveness of Green Advertising with Positive Emotional Appeals***

Based on a one-way ANOVA test, H3 was partially supported. With regard to the effectiveness of green ad films with positive-emotional appeals, NFC only had a significant influence on behavioral intentions ( $F=3.21$ ,  $P=.042$ ), and no great effects were found for cognitive attitude and affective attitude (see Table 2).

The results of a post-hoc test show that individuals with high NFC ( $M=36.62$ ) had a stronger behavioral intention toward the green films with positive-emotional appeal frames than individuals with low NFC ( $M=30.08$ ).

### ***Impact of Need for Cognition (NFC) on the Effectiveness of Green Advertising with Negative Emotional Appeals***

With regard to the effectiveness of green ads films with negative-emotional appeals, the need for cognition had significant impacts on cognitive attitude ( $F=4.20$ ,  $P=.016$ ) and affective attitude ( $F=5.23$ ,  $P=.006$ ), but not on behavioral intentions (see Table 2).

With regard to the advertising effectiveness of cognitive attitude, the results of a post-hoc test show that high NFC individuals ( $M=30.10$ ) had a higher level of cognitive attitude toward the green films with negative-emotional appeal frames than moderate NFC ( $M=28.23$ ) and low NFC individuals ( $M=28.46$ ). However, there was no significant difference in cognitive attitude between the moderate and low NFC individuals.

Regarding the advertising effectiveness of affective attitude, the results of a post-hoc test show that high NFC individuals ( $M=29.65$ ) had a higher level of affective attitude toward the green ads films with negative-emotional appeal frames than moderate ( $M=27.61$ ) and low NFC individuals

(M=27.61). However, there was no significant difference in affective attitude between the moderate and low NFC individuals.

**Table 2. ANOVA analysis for the effects of NFC on the advertising effectiveness of green ads with positive-emotional and negative-emotional appeals**

Advertising Effectiveness	Level of NFC	n	M	Std.	F	Sig.	Post Hoc
Cognitive Attitude (viewing positive-emotional appeal)	Low	85	26.87	4.46	1.79	.169	
	Moderate	108	27.13	4.11			
	High	77	28.13	4.94			
	Total	270	27.33	4.48			
Affective Attitude (viewing positive-emotional appeal)	Low	85	26.95	4.47	.75	.473	
	Moderate	108	27.49	8.64			
	High	77	28.23	5.35			
	Total	270	27.53	6.65			
Behavioral Intentions (viewing Positive-emotional Appeal)	Low	85	30.08	6.94	3.21	.042	High > Low
	Moderate	108	31.45	5.68			
	High	77	32.62	6.70			
	Total	270	31.36	6.45			
Cognitive Attitude (viewing negative-emotional appeal)	Low	85	28.46	4.79	4.20	.016	High > Moderate > Low
	Moderate	108	28.23	4.53			
	High	77	30.10	4.38			
	Total	270	28.84	4.63			
Affective Attitude (viewing negative-emotional appeal)	Low	85	27.61	5.03	5.23	.006	High > Moderate > Low
	Moderate	108	27.61	4.39			
	High	77	29.65	4.67			
	Total	270	28.19	4.75			
Behavioral Intentions (viewing negative-emotional appeal)	Low	85	30.94	6.79	2.75	.066	
	Moderate	108	32.05	5.81			
	High	77	33.30	6.70			
	Total	270	32.06	6.43			

### **Advertising Effectiveness of Green Films: Positive versus Negative Emotional Appeal**

Regarding the advertising effectiveness of the green films, the differences between the positive and negative-emotional appeal frames were analyzed using a paired-sample t-test. As Table 3 shows, there were significant differences with regard to cognitive attitude ( $t = -6.136$ ,  $P = .000$ ) and behavioral intentions ( $t = -3.150$ ,  $P = .002$ ), but not in relation to affective attitude. H5 was thus partially supported (see Table 3).

**Table 3. A paired-sample t-test analysis for the advertising effectiveness between positive-emotional and negative-emotional appeals**

Advertising Effectiveness		n	M	Std.	t	Sig.
Cognitive Attitude	Positive-emotional Appeal	270	27.33	4.48	-6.136	.000
	Negative-emotional Appeal	270	28.84	4.63		
Affective Attitude	Positive-emotional Appeal	270	27.53	6.65	-1.689	.092
	Negative-emotional Appeal	270	28.19	4.75		
Behavioral Intentions	Positive-emotional Appeal	270	31.36	6.45	-3.150	.002
	Negative-emotional Appeal	270	32.06	6.43		

## Discussions

### *Impacts of Involvement on Advertising Effectiveness*

With regard to the impacts of involvement on advertising effectiveness, some studies (e.g. Robertson, 1976; Korgaonkar and Moschis, 1982; Lee and Mou, 2012) have indicated that low-involvement individuals tend to be more easily affected by advertising, and thus have stronger purchase intentions, than high-involvement individuals. On the other hand, studies such as Zaichkowsky (1986), Petty and Cacioppo (1996), Kokkinaki and Lunt (1999), Lin, Fu, and Lee (2011), and Lin and Huang (2005), proposed that a high level of involvement is usually associated with advertising having stronger impacts on cognitive attitude, affective attitude, behavioral intentions, purchase intentions, or recall, than a lower level of involvement. The present study partially supports these earlier works, and also shows that a higher level of involvement had significant effects on cognitive attitude, affective attitude, and behavioral intentions toward films aimed at promoting greater environmental awareness that made use of emotional appeals. In other words, when the such films are produced using emotional appeal frames, personal involvement should be considered as an important factor to predict the effectiveness of cognitive attitude, affective attitude toward advertising, and behavioral intentions.

When considering the ads effectiveness of cognitive attitude toward ads, Zaichkowsky (1986) pointed out that high-involvement consumers tend to search for product-related information in a more active way, and thus have a better understanding of product attributes, which can then have a greater effect on cognitive attitude, than low-involvement consumers. Besides, Kokkinaki and Lunt (1999) and Lin, Fu, and Lee (2011) revealed that subjects in the high involvement condition paid more attention to the ads and concentrated more on the written messages in them than did subjects in the moderate and the low involvement conditions, respectively. The present study also echoes the findings of these earlier works, and further highlights the effect of involvement on the advertising effectiveness of cognitive attitude in the context of films to raise environmental awareness that make use of either positive or negative emotional appeal frames. In other words, when exposed to such films, a subject's level of personal involvement is an important factor that can predict the effectiveness of cognitive attitude toward advertising, and high-involvement individuals have a better understanding of the content of such films than low-involvement ones, as they are more aware of the importance of environmental protection.

However, in contrast to the findings in relation to the use of negative-emotional appeals, this study found no significant difference in cognitive attitudes toward the films with a positive-emotional appeal between the moderate- and low-involvement individuals. It can thus be inferred that the impact

of personal involvement with environmental protection issues on cognitive attitudes toward the films with positive-emotional appeals is not as great as it for those with negative appeals. In other words, it is more effective to produce green advertisements using negative-emotional appeal frames than positive ones.

Regarding the affective attitude toward advertising, Lin and Huang (2005) found that the high-involvement condition had a greater effect on this than the low-involvement one. Lin, Fu, and Lee (2011) also reported that subjects in a high-involvement condition showed a more favorable attitude toward the brands in ads than those in a low-involvement one. Similar results are also found in the current work, and thus there is support for the effects of involvement on the affective attitude toward advertising, when either positive- or the negative-emotional appeals are used. Moreover, high-involvement individuals will show more favorable attitudes toward ads with regard to promoting environmental protection than low-involvement individuals.

However, in contrast to the findings in relation to the use of negative-emotional appeals, this study found no significant difference in affective attitude toward the films with positive-emotional appeals between moderate- and low-involvement individuals. It can thus be inferred that the impact of personal involvement in environmental protection issues on affective attitude toward such advertising using positive-emotional appeals is not as great as it for the films that use negative appeals. In other words, it is more effective to produce ads films to promote environmental awareness using negative- rather than positive-emotional appeals. However, it is interesting to note that Moore and Harris (1996) suggested higher involvement individuals will have a more favorable affective attitude toward the positive-emotional appeals than negative ones.

Zaichkowsky (1986) and Lin, Fu, and Lee (2011) both found that a higher level of involvement has greater effects on behavioral intentions than a lower level. Kokkinaki and Lunt (1999) showed that high-involvement subjects pay more attention to ads, as though they are actually considering buying the products, than moderate-involvement subjects. The present study also indicated that the level of personal involvement is an important factor with regard to the resulting behavioral intentions when exposed to films using emotional appeals. In contrast, studies such as Robertson (1976), Korgaonkar and Moschis (1982), and Lee and Mou (2012) reported that individuals with low-involvement show a stronger purchase intention than those with high-involvement, since they have less resistance toward the content of the advertising, and thus tend to be more easily influenced by these messages than individuals with high involvement. However, Lin and Huang (2005) found that involvement had no impact on the ads effectiveness of behavioral intentions

### ***Effects of Need for Cognition on Advertising Effectiveness***

Need for Cognition (NFC) is an important factor that can be used to predict advertising effectiveness (Haugtvedt, Petty, and Cacioppo, 1992). As Nesbitt, Manchanda, Smith, and Huhmann (2011) showed, high NFC individuals reported greater effects with regard to personal involvement, recall, and attitude toward advertising. However, the present study found that NFC only has significant impacts on the advertising effectiveness of cognitive attitude and affective attitude in response to negative-emotional appeals, and not positive ones. In addition, the high NFC individuals reported greater effects on cognitive attitude and affective attitude toward green advertising from the films with negative-emotional appeals than seen with the moderate and the low NFC individuals.

Keller, Lipkus, and Rimer (2002) stated that cognitive elaboration is greater when negative emotions predominate. Since negative emotions cause people to process information in a more

thorough and systematic fashion, it is not surprising that cognitive attitude is affected more by advertising that contains negative-emotional appeals rather than positive ones. Furthermore, this can also explain that why the high NFC individuals were more affected by the films using negative-emotional appeals than that of the lower NFC individuals.

Moreover, since negative-emotional appeals can be used to make viewers process the information they are presented with in a more thorough and systematic manner (Keller, Lipkus, and Rimer, 2002), and thus lead to a greater understanding of the related issues. Having a deeper understanding of the content and context of an advertisement tends to create a more favorable attitude toward it. This thus helps explain why the individuals with the higher NFC, who showed a more favorable affective attitude toward the green films in this work, was impacted more significantly by the films using negative-emotional appeals rather than positive ones. On the other hand, the green films using positive-emotional appeal frames tended to present information that the viewers were already familiar with, and thus less attention and cognitive effort was required. This can also explain why different levels of NFC have no significantly different effects on cognitive attitude and affective attitude toward green advertising that used positive-emotional appeals.

The results of this study further show that NFC only affects behavioral intentions toward green advertising when the films use positive-emotional appeal frames. It was indicated that, after viewing such films, the high NFC individuals had stronger behavioral intentions with regard to environmental protection than the low NFC individuals. This may be because positive appeals often present more exact information about how to protect the environment. This information can then help to clarify the thinking of high NFC individuals' with regard to how to protect the environment, and perhaps push them into taking practical actions.

### ***Effectiveness of Green Advertising: Positive versus Negative Emotional Appeals***

In the context of AIDS, Hsu (1999) found that positive-emotional appeals had more positive effects on favorable attitude and behavioral intentions than negative appeals. Nesbitt, Manchanda, Smith, and Huhmann (2011) further reported positive-emotional appeals had a greater influence on favorable attitudes toward advertising than negative ones for older adults. However, in the present study negative-emotional appeals had greater effects on the ads effectiveness of cognitive attitude and behavioral intentions than positive appeals, supporting the results of Keller, Lipkus, and Rimer (2002), Isen (1984), Hyman and Tansy (1990), and Lin and Huang (2005).

The results of this study showed no significant difference in affective attitude with regard to the positive- and the negative-emotional appeal frames. However, based on the effects of personal involvement and NFC, high involvement and high NFC individuals were found to show a greater affective attitude toward the environmental awareness films with the negative-emotional appeals.

In conclusion, this study thus suggests that advertisements that aim to promote environmental awareness that make use of negative-emotional appeals will be more effective with regard to behavioral intentions, cognitive attitude, and affective attitude toward ads, than those that use positive-emotional appeals. Furthermore, it is also suggested that such films with negative-emotional appeals are most effective with high-involvement audiences. However, when considering a high NFC audience and how this can affect behavioral intentions, it is suggested that positive-emotional appeals should be used.

### Limitations and Suggestions for Future Studies

This study has some limitations which suggest avenues for future research. For example, since the subjects in study were all university students, the findings should be generalized with caution. Other demographic factors that may affect attitudes toward the environment, such as age, gender, and being parents, may also be taken into consideration in future studies.

Moreover, another limitation is that each film was shown to the participants only once during the experiment, while in the reality people tend to be exposed to such media many times. In addition, participants' opinions were sought immediately after they viewed the films, and their instant reactions may not be the same as their long term responses. Future works may take this into consideration to improve the experimental design.

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