

Environmental Communication in the Digital Age: A Study of Emotional Appeal Effects

Worawan Ongkrutraksa

ABSTRACT

Japan is a country where information technology has a great impact on people especially the young and the middle-aged citizens. This study pioneers an in-depth analysis of environmental advertisements and consumers in Japan. The high digital technology should be somehow relevant to the consumers' attitude toward the different aspects of environmental advertising.

The experiment conducted under this study examines the effects of the fear appeal, warmth appeal,

and the well-baby appeal, which emphasize the significance of individual behavior that may increase the perceived consumer effectiveness (PCE) in environmental print ads. The empirical results provide evidence that the fear appeal in pictures will influence positive attitudes toward environmental action and image recall. The well-baby appeal in messages and the fear appeal in pictures increased PCE one month after the subjects had received the experimental stimuli.

INTRODUCTION

“French heat toll 'could top 5,000’”
“Deaths rise in Italy heat wave”
“Tolls rise as Spain fires continue”
“British heat record smashed”
“Pope prays for rain”
“Portugal fire cost tops \$1 billion”
“Thousands of animals perish”

Headlines from CNN.COM (August 18, 2003)

We now cannot deny that the world is in an environmental crisis. The world's average temperature in the summer is getting higher and higher because of the green house effect. In August 2003, the death toll from France's heat wave could be as high as 5,000, according to the country's health ministry. This phenomenon has never happened before in the last 100 year. There were heavy floods in many countries. A variety of environmental problems now affect our entire world (CNN.COM, 2003).

As a result, the development of environmental advertising claims and campaigns, so-called “green advertising,” (or “environmental advertising” which name shall be used throughout this study) by both private organizations and governmental agencies during the last decade has gained surging popularity worldwide with stronger trends toward the future. Japan is also one of the countries where environmental marketing has developed rapidly. As Asian-Enviro's (1997) website (The site draws on the established regional networks of environmental professionals) stated, that following a number of high profile incidents (such as the Minamata mercury disaster), Japan introduced strict pollution control regulations and invested heavily in abatement techno-

logy. Much of it was transferred from the US and Europe. In 1975 alone, 21% of the private sector investment was directly related to pollution control. With the infrastructure in place, this dropped to 2.5% by 1985 and then to 1.2% in 1993.

In the advertising perspective, Volvo's print advertisement, which was published in the Nikkei newspaper, received an annual advertising award from the Japanese ECO LIFE Association, the Nihon Keizai Shimbun Award, in 1990. This was the first monumental step for green advertising to advance in Japan (Nihon Keizai Shimbun, 1994). While catching tremendous attention and creating strong awareness, the 1992 Earth Summit had called upon the Japanese advertising industry to utilize and employ more environmental themes in their advertising processes. For example, Dentsu, Inc. the largest advertising agency in billing in Japan (Frith, 1996) has released a report on the results of its “Green Consumer” Awareness Survey (Dentsu News, 1998). The report analyzes and compares the results of the latest survey conducted in October and November 1997 on consumer awareness of the environment as well as on environment-friendly products and corporate communications that employed an environmental theme

with similar surveys carried out in 1991, 1992, and 1993. According to Dentsu's report, a rapid increase in the number of people who are environmentally aware, the so-called "green consumers," has begun to lend a profound effect on corporate marketing decisions and communications.

AdAge.com (1998), the Web site of Advertising Age, magazine of the Ad Age Group, reported that Dentsu itself has scored a big hit with its "Eco-project" advertising for Toyota. The campaign highlights Toyota products and efforts that help the environment. The Toyota Prius, with its emissions reducing gasoline and electric engine, has enjoyed robust sales since it first hit the Japanese market about a month ago (reported in January 28, 1998).

The above facts indicate a rapid increase of green marketing, advertising and consumers in the world, and much has been written within the marketing/ ecology domain in the last twenty years (Kilbourne, 1995). However, most of the published papers of green advertising are American advertisements. Very few studies have looked at Japanese green advertising (see for more detail from Iyer and Banerjee 1992, 1993; Banerjee, Gulas and Iyer 1995; Carlson et al., 1993). The environment has come to be regarded as an "everyday" theme in Japanese advertising and the Japanese consumer recognition of environmental advertising now stands at a high 60% (Dentsu News, 1998). Thus, this study focuses on newspaper advertisements despite a study by Kawabata M. and Mikami S. (2001) which discussed that television news programs have great potential for promoting environmental awareness. The Japanese Prime Minister's Office's survey in 1999 indicated that 75% of the respondents used newspapers as a source of knowledge or information about global environmental issues (Prime Minister's Office, 1999). Therefore, this study is the pioneer to analyze green advertisements and green consumers in Japan.

THEORETICAL BASES AND RESEARCH HYPOTHESES

Emotional Appeal in Japanese Environmental Advertising

The majority of Japanese environmental print advertising show ambiguous messages and subsequently, young Japanese consumers showed a relatively negative attitude toward environmental advertising (Koizumi and Ongkrutaksa, 2000; Matsumura and Ongkrutaksa, 2003). This fact has brought a need to develop a more effective environmental print advertising than what has been used until now.

The previous research found that Japanese consumers are sensitive to emotional advertising (Ramaprasad and Hasegawa, 1990). Therefore, using the emotional appeal may perform an advantage in Japanese environmental print advertising.

Following are some discussions about the use of two types of emotional strategies, warmth and fear, to promote changes in consumer attitudes.

1. Warmth Appeal

The warmth appeal is defined as "a positive, mild, short termed emotion involving physiological arousal and precipitated by experiencing directly or vicariously a love, family, or friendship relationship"

2. Fear Appeal

Fear appeals are commonly used when advertisers play on a person's emotions in a negative manner. However, the extent of effectiveness of the fear appeal is unknown. However, what is known is that great care must be taken in its use. The purpose of the fear appeal is to draw the attention to common risks or fears and associate them with the outcome of not using a certain product or performing a certain action.

Using the emotional appeal in environmental advertising needs careful consideration as shown in Obermiller (1995)'s study; the impact of the "*sick baby appeal*" or the fear appeal may offer advantage when dealing with a problem that people regard as relatively unimportant.

Alternatively, when concern for an issue is high, the sick baby appeal may offer a redundant warning, or worse, cause a boomerang effect. In such cases, the encouragement and affirmation of the "*well-baby appeal*" is preferable. The "well-baby" appeal appears to operate mainly through its affirmation of the significance of individual action, which increases perceived consumer effectiveness (PCE). However, Obermiller (1995) also found his results do not support the supposition made by Ellen et al. (1991) that all environmental causes could benefit from a switch to "well-baby appeals".

Using Visual and Verbal Emotional Appeal in Environmental Advertising

Obermiller (1995) used only plain text as experimental stimuli to test the effect of the advertising appeal. According to research in image in print advertising among Asian consumers, the findings indicated that better recall was obtained with ads containing pictures and words than words-only ads (Leong, Ang and Tham 1996). Callow and Schiffman (2001) also suggested that consumers from high-context cultures tend to interpret images at a greater symbolic level than consumers from low-context cultures.

As stated above about the importance of the fear appeal in environmental advertising for Japanese consumers, the first hypothesis is posed as follows:

H1: The fear appeal in pictures will stimulate a positive attitude toward environmental action and image recall.

Perceived Consumer Effectiveness (PCE)

Roberts (1996) has addressed the premise that the consumers' attitudes and responses to environmental appeals are a function of their belief that individuals can positively influence the outcome to such problems. This attitude or belief is referred to as perceived consumer effectiveness (PCE). Findings have been fairly conclusive that PCE is positively correlated with ecologically conscious consumer behavior (ECCB). Ellen et al. (1991) demonstrated that PCE is distinct from environmental concern and contributes uniquely to the prediction of certain pro-ecological behaviors. Therefore, to test if the "well-baby" appeals (stress the significance of individual action that may increase PCE) have an impact on Japanese consumers, the next hypothesis is as follows:

H2: The "well baby" appeal in headline copy and the fear appeal in pictures will increase PCE in Japanese consumers.

METHODOLOGY

The research design is a pretest-posttest-one month delayed posttest-control group. To identify which combination of advertising appeals (headline copy and picture) is the most effective one, 7 experimental stimuli (print ads) were created. The control group received a print ad, without any emotional appeal.

Table 1: 7 Experimental stimuli used in the experiment

	<u>Headline Copy</u>	<u>Ad Picture</u>
Group1	fear appeal	fear appeal
Group2	fear appeal	warmth appeal
Group3	warmth appeal	warmth appeal
Group4	warmth appeal	fear appeal
Group5	well baby appeal	warmth appeal
Group6	well baby appeal	fear appeal
Group7	No emotion ad (Control group)	

To verify that each advertisement did appropriately represent the category to which it had been assigned, 5 college students were asked to first read the definitions of the types of advertisement, view each of the 6 ads, and then determine to which category each advertisement belonged. All the commercials were correctly classified, and the inter observer agreement was 100%.

Dependent variables

The subjects were asked to look and read one of the advertisements for approximately one minute. Then

Subjects

This study was conducted at Tokai University in Kanagawa, Japan. The subjects were 165 undergraduate students. They were randomly assigned to one of the six treatment groups or the control group.

Experimental Stimuli

The product category selected for this experiment was an automobile. A fictitious name, PTT, was selected and presented. The stimulus ads used in the study were based upon a professionally prepared "rough" execution, i.e., artwork rather than a finished graphic or photograph. The advertisement itself consisted of the brand name, PTT, at the bottom of the page, with an image on the top. Variations of this advertisement were then created by making black and white copies of the full picture, a fear appeal and warmth appeal picture.

In this study, 2 more types of advertisement were created to test the effect of the "well-baby" appeal (stress the significance of individual action which may increase perceived consumer effectiveness or PCE) if it may increase PCE. Thus, including the control group's ad, a total of 7 advertisements were used in this study (see Table 1 and appendix for examples of stimuli) The subjects saw each of 7 the experimental stimuli, and had to complete a series of 6-point Likert type scales or semantic differentials, measuring various communication effects.

the ad was removed, and subjects from group 1 to group 4 received a questionnaire with the 6-point Likert scales (measure 1-measure 6) environmental concern and environmental advertising interest measures. The subjects from group 5 to group 7 were the same as the rest of all groups but questions were added with 2 questions for the Perceived Consumer Effectiveness measure.

One month after the immediate test, the same subjects were asked again to respond to the same questions. To test the attitude toward the experimental stimulus, in the same questionnaire, there were the following attributes: ad was impressive, ad was good,

ad was persuasive, ad had an impact on environmental behavior, the image of the ad was impressive and the copy of the ad was impressive. One month after the immediate test, the subjects were asked again to respond to the ad recall questions. A questionnaire with the 6-point Likert scales denoted the following attributes: ad recall, image recall, and copy recall. The 6-point Likert scales were used because it is accepted and used by most Japanese researchers for the Japanese students' sample to increase the reliability of the research tool.

RESULTS

Test of H1: Fear appeal in picture will influence positive attitudes toward environmental action and image recall.

The differences between the manipulations and the control group were examined using the one-way ANOVA (see Table 2 and Table 3). From the immediate posttest, group 1's ad (fear headline and fear picture) is *impressive* (or makes good impression) and equal to the fear headline and warm picture (group 2) but less impressive than group 3, 5, 6 and the control group (no emotion). The result can be concluded as:

Fear + Fear = Fear + Warmth

Warmth + Warmth, Well Baby + Warmth, Well Baby + Fear, no emotion > Fear + Fear

The data show that the subjects evoked more favorable *ad cognitions* (advertising is good) for group 5's ad (Well Baby + Warmth) than group 6

(Well Baby + Fear) and group 1's ad. The result can be concluded as:

Well Baby + Warmth > Well Baby + Fear, No emotion ad

However, the subjects evoked more favorable the *ad persuasion* for group 1's ad (fear + fear) than group 3 (warmth + warmth) and the control group. Another significant difference was found more favorable for the ad persuasion for group 4's ad than group 3 and the control group. The result can be concluded as:

Fear + Fear > Warmth + Warmth, No emotion ad

Warmth + Fear > Warmth + Warmth, No emotion ad

Moreover, the subjects evoked more favorable the *ad impact on environmental protection* behavior for all group's ads than the no emotion ad. But no significant differences were found between 6 ads.

For the positive *attitude toward image in the ad*, significant differences were found between the warmth picture ad and the fear picture ad. The subjects evoked more favorable for the warmth image ad than the fear image ad. The subjects also evoked more favorable for the no emotional image than the fear ad.

Warmth picture > Fear picture

Table 2: Analysis of Variance of Attitude toward Experimental Stimulus

	Sum of Squares	df	Mean Square	F	Sig.
Impressive	90.286	6	15.048	11.732	.000
Image	161.674	6	26.946	23.561	.000
Copy	34.255	6	5.709	3.838	.001
Persuasive	40.909	6	6.818	4.974	.000
Good Ad	24.769	6	4.128	3.143	.006
Impact	70.941	6	11.824	9.090	.000

Table 3: Means, Tukey HSD Paired Comparison*

	1.ff (n=30)	2.fw (n= 27)	3.ww (n= 30)	4.wf (n= 31)	5.wpce&w (n= 27)	6.wpce&f (n= 25)	7.control (n= 22)
Advertising is Impressive	4.63 ²³⁵⁶⁷	4.63 ¹⁴	2.92 ¹⁴	3.03 ²³⁵	3.90 ¹⁴⁶	<u>2.44</u> ¹⁵	3.72
Advertising Is good	3.93 ⁵	3.22	3.43	3.54	<u>2.74</u> ¹⁶	3.68 ⁵	3.68
Advertising is persuasive	2.70 ³⁷	3.55	3.80 ¹⁴	<u>2.67</u> ³⁷	3.11	3.24	3.90 ¹⁴

Advertising has an impact on environmental behavior	3.03 ₇	3.03 ₇	3.66 ₇	<u>3.00₇</u>	3.44 ₇	3.40 ₇	5.097
Image is Impressive	4.60 ₂₃₅₇	2.48 ₁₄₆	2.73 ₁₄₆	4.41 ₂₃₅₇	<u>2.29₁₄₆</u>	4.20 ₂₃₅	3.13 ₁₄₆
Copy is impressive	4.16 ₂₅	3.07 ₁	3.40	3.25	2.77 ₁	3.28	3.72

*1) Small numbers indicate differences between groups, Tukey's, $p < 0.05$, where 1 = fear copy + fear picture, 2 = fear copy + warmth picture, 3 = warmth copy + warmth picture, 4 = warmth copy + fear picture, 5 = well baby copy + warmth picture, 6 = well baby copy + fear picture, 7 = control group. 2) All measures are averages of 6-point scales, with higher numbers indicate more positive attitudes. Numbers underlined indicate the highest means in all ad groups.

The means comparisons from the one month delayed posttest reveal that the warmth headline copy and the warmth picture (group 3's ad) and the warmth headline and fear picture (group 4's ad) have more positive *ad recall* than the no emotion ad (see Table 4). The fear picture has a more positive attitude *image recall* than the warmth picture and the no emotion picture. **Therefore, H1: "Fear appeal in picture will influence positive attitudes toward environmental action and image recall" was supported.**

The results show that the combination of appeals between the headline copy and the image are significantly important factors, which need to be carefully considered.

Finally, all 7 ads' copy recall in general a negative attitude and the means comparisons from the one month delayed posttest reveal no significant differences between ad groups.

Table 4: One month after post test Means, Tukey HSD Paired Comparisons*

	1.ff (n=24)	2.fw (n= 19)	3.ww (n= 29)	4.wf (n= 25)	5.well&w (n= 23)	6.well&f (n= 23)	7.control (n= 19)
Ad recall	3.29	3.52	2.687	<u>2.527</u>	3.17	2.86	3.7334
Image recall	2.954	3.31346	2.2727	<u>1.841257</u>	2.914	2.2627	3.73346
Copy recall	4.20	<u>4.00</u>	4.20	4.08	<u>4.00</u>	4.13	4.36

*Subscripts and means indicate the same meanings as table 3

Test of H2: Well baby appeal in headline copy and fear appeal in picture will increase PCE in Japanese consumers

To test H2, group 5 (well baby appeal in headline copy and warmth appeal in picture) and group 6 (well baby appeal in headline copy and fear appeal in picture) the subjects were tested if their PCE increased after they saw the experimental stimulus. The pre-test and immediate post-test for PCE results (Table 5) indicated no statistically significant differences between the groups. However, a statistically significance

was found between group 6 and a control group in the one-month delayed post-test ($F=3.344$, $p < 0.005$).

The result showed that the well baby copy and the fear picture (group 6's ad) may increase PCE better than the well baby copy and the warmth image one month after they saw the experimental stimulus (see Table 6). **Therefore, H2, which predicted that the well baby appeal in headline copy and the fear appeal in picture will increase PCE in Japanese consumers, was supported.**

Table 5: Analysis of Variance of PCE Measures: Pretest, Posttest and One Month Delayed Posttest

	SS	df	MeanSq	F	Sig.
Pre test	3.032	2	1.516	1.457	.241
Post test	3.909	2	1.954	2.564	.085
Delayed post test	4.864	2	2.432	3.344	.042

Table 6: One Month after Post Test Means, Dunnett's Paired Comparisons*

	5.well&w (n= 23)	6.well&f (n= 23)	7.control (n= 19)
PCE measurement	3.47	<u>4.007</u>	3.406

*Subscripts and means indicate the same meanings as table 3

DISCUSSION, IMPLICATIONS AND DIRECTIONS FOR FUTURE RESEARCH

This study's outcome shall support and add more understanding about environmental advertising appeals in the digital age which we are living in. In the digital world like that of the Japanese society, Leong, Ang and Tham (1996) previously concluded that consumers are more attracted to pictures than words. However, using the emotional appeal in pictures of environmental ads should be carefully considered.

This study found that although the subjects may be evoked more favorable attitudes for warmth than for fear pictures, fear pictures in environmental advertising shall affect a low environmental concern or anxiety among the Japanese consumers toward environmental action.

Therefore, to create consumers' positive attitudes toward environmental action, the fear appeal in pictures may be an effective tool.

Another important extension of the present research is to examine the consequences of the "well-baby" appeal which stresses the significance of individual action. The "well-baby" appeal in headline copy and the fear appeal in pictures may contribute to the Japanese consumers' belief that individuals can positively influence the outcome to environmental problems. This attitude or belief is referred to as perceived consumer effectiveness (PCE). PCE shall increase green purchase likelihood and other green activities.

Furthermore, the result showed that the "well-baby" appeal in headline copy and the fear appeal in pictures could increase PCE better than the well baby appeal in headline copy and the warmth appeal in

images one month after they saw the experimental stimulus.

This study's implication for advertisers is that the more advertisers build up positive attitudes in people about their response to the environment, the more positive the public's expected response is to their advertising. And during times when the environment is of greater concern to people, advertisers can also expect that there will be more positive responses to their green advertising (Thorson et al., 1995).

The findings shall be taken to the considerations for advertisers in all sectors to build up positive attitudes in people about their response to the environment. The private sector, such as the corporations that position or will position themselves to be a green company, may as well apply the results of this research into a better corporate strategy, specifically, the corporate identity and corporate image. Up until now there are many critical voices from both scholars and consumers that the current Japanese green corporations are very superficial with their environmental action.

This problem may cause weak and ineffective environmental communication. This study's results shall imply the solutions for reducing the weakness in corporate environmental communications.

As with any study, there are weaknesses that must be observed and taken into consideration. The authors plan to re-examine the persistence of the effects of the emotional appeal in environmental print advertising. Planned improvements include a strengthening of the power of experimental design (such as using color or a large size picture) and having a greater sample size. Finally, improved measurement of the cognitive structure will be incorporated.

Appendix: Examples of Experimental Stimuli

Ad. Number	Head Line Copy	Picture
1	Fear Copy	Fear Picture
2	Fear Copy	Warmth Picture

Ad Number 1

もう…限界だ
このまま環境公害が進めば
次に死ぬ人は あなたの大事な人だ



母親が成人した娘（水俣病患者）をお風呂にいれる。
（水俣病は、工場排水中のメチル水銀に汚染された魚や貝などをたくさん食べることによっておこったメチル水銀中毒です）

PTT自動車の会社の環境広告

このまま環境公害が進めば
あなたの愛する赤ん坊は
やつれて死んでしまう。
環境公害を起こさないために
がんばりましょう

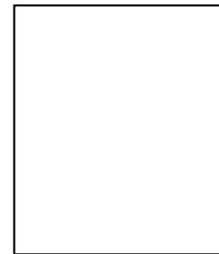


PTT自動車の会社の環境広告

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Dr. Worawan Ongkrutraksa, is currently a lecturer in the Advertising Division, Public Relations Department, Faculty of Communication Arts, Chulalongkorn University in Bangkok. She is a Ph.D. candidate in Mass Communication/Advertising, Tokai University, Japan. She acquired her M.A. in Mass Communications from the same university and another M.A. in Media Studies from The New School for Social Research, New York, USA.