

The Communication Effectiveness Of Government-Sponsored Environmental Advertising In A Newly Industrialising Economy: The Case Of Hong Kong, China

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The present study is aimed at assessing the communication effectiveness of environmental TV commercials recently launched by the Hong Kong government. Overall, communication effectiveness is seen to decline as viewers travel up the communication hierarchy. Specifically, the findings indicate a very high awareness of the tested environmental commercials, an outcome probably derived from the ingenious use of the appropriate endorsers. The majority of the viewers under study also strongly agree with the advertised claims (i.e. high comprehension) and perceive them favorably (i.e. positive attitude). Disappointingly, these encouraging cognitive and affective responses do not appear to be effectively channeled to a desired level of intention/action tendency. To improve the communication effectiveness at the conative level, the government needs to reconsider its current environmental promotion strategies which focus largely on awareness creation. Moreover, to make the performance of eco-friendly activities more feasible and economically justifiable, the government needs to adopt more facilitating measures through legislation and investments in the supporting infrastructures. Lastly, the present study also shows that communication effectiveness varies with message specificity of the commercials and hints at the superiority of using specific message to generate action tendency.

Field of Research: Environmental Advertising. Governmental Communication Management. Industrializing Economy.

1. Introduction

In reviewing the green movement, Wasik (1992) ,McGougall (1993) and Yamauchi (2007) assert that the green revolution is primarily driven by the public in the capacity of ordinary citizens or consumers. The importance of the public in the course of 'environmentalisation' is three-fold. The first and most obvious is that the degree of citizens' environmental consciousness will undoubtedly affect their engagement in various forms of conservation activities

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Second, when confined to consumption behaviors, it is likely that consumers with high environmental concern will eventually channel their environmentally friendly attitudes into relevant green purchases. The effect of these green purchases will be far reaching given that 30% to 40% of environmental degradation has been brought about by the consumption activities of private households (Grunert, 1993, Singtao, 2008). Third, as the public continues to engage in green consumption and demand more regulations for environmental protection from the government, smart businessmen will consequently be driven to apply more eco-friendly technologies and green appeals to avoid expensive legal liabilities (Shi and Kane, 1996) and/or to capitalize on emerging business opportunities (Biddle, 1993; Azzone and Bertele, 1994; Beh, 1994; Gallarotti, 1995 Cravens and Piercy, 2008).

While the above analysis manifests the importance of the role of the general public in advancing the nationwide green revolution, it also hints at a strong need for the government to first promote environmental ethics effectively among its citizens before they are able to behave in an environmentally conscious manner. The issue of effective environmental promotion is especially relevant for those fast developing Asian economies whose people are often too content with the economic benefits derived from industrialization and tend to overlook the urgency of environmental protection (East Asian Executive Reports, 1995, 2007). In order to gain a better understanding on how effectively environmental messages have been promoted in Asia's fast developing nations, this study aims at investigating the situation in Hong Kong, one of the fastest industrializing economies in the region over the past few decades (Ho, 1989; Asian Economic Survey, 2003). Since the Hong Kong government typically relies on television advertising for promoting its social campaigns (Chan, 1991), this study thus concentrates on assessing the communication effectiveness of government-sponsored TV advertising in advancing environmental ethics in Hong Kong. Hopefully, these findings will provide the domestic government with valuable insights into how to fine-tune its environmental promotion strategies in the future. Moreover, as most fast developing Asian nations share similar experiences with regard to ecological deterioration in the course of industrialization (Environmental Manager, 1991; Ho et al, 1994, East Asian Executive Reports, 1995 and 2007), it is also hoped that these findings will provide some useful references to help neighboring countries enhance their sustainability development.

2. Literature Review

An awareness of environmental degradation has taken a long time to arise in Hong Kong (Ting, 1991, SCMP, 2008). Similar to other industrializing nations, Hong Kong has been paying a high ecological price for its rapid economic growth in terms of worsening pollution and an accelerating depletion of its already scarce natural resources (Chan and Yam, 1995). When compared with other nations, Hong Kong's lack of sustainability management is readily evident. On average, Hong Kong has spent only 1.5% of its GDP on environmental protection. This figure has given Hong Kong the notorious reputation of being "the most ecologically unsound place in the world" (Hung, 1995). When compared with the corresponding percentages in the US (2.5%) and Australia (5%), Hong Kong's apathy towards ecological concerns is obvious (Martinsons et al, 2008). As the environmental condition continues to decline, the Hong Kong government has been forced to take a more proactive role in environmental protection. In this regard, the release of the White Paper earlier on in 1989 and recently in 2007 on 'Pollution in Hong Kong:

A Time to Act" has clearly demonstrated the government's determination to advance the ecological well-being of the territory through various regulatory and promotional means (Chan and Yam, 1995, Ming Pao, 2008)). Since then, the Environmental Protection Department of the Hong Kong government has been taking a lead "to promote community awareness, through campaigns, publicity, education with a view to harnessing the community's support for and contribution to achieving desired environmental goals, and securing a long term solution to environmental problems" (Environment Hong Kong, 2007, p. 95). In 1996 and again ten years later in 2007, the Hong Kong government further labeled environmental protection as a "major government campaign" and continued to allocate more resources to enhance public awareness of environmental protection (Environment Hong Kong, 1997, 2007). Despite these governmental efforts, recent studies show that the development of environmental ethics in Hong Kong is still rather backward (Chan and Yam, 1995). Some researchers attribute this environmental apathy to the neglect of relevant civic education. It is also due to the typical Confucian cultural characteristic that focuses on the small social circle (e.g. family) and promotes indifference to events outside that circle (Blackstone, 1974; Bond and Hwang, 1986; Mowen and Minor, 2001, Martinsons et al, 2008). In view of this, the actual effectiveness of the recent environmental TV commercials (ETVCs) in carrying out their social marketing and educational functions attracts much academic and policy interest. This issue also forms the core of the present study.

3. Methodology and Research Design

To achieve the foregoing research objectives, two consecutive empirical tests were conducted. Given that the Hong Kong government has launched a considerable number of ETVCs since the release of its first environmental White Paper, the first test is thus aimed at confining the analysis to a manageable scope by first identifying the most 'representative' ETVCs of those that have been recently launched. After the most representative ETVCs were identified, their communication effectiveness was then subject to a more thorough assessment in the second test. The details of the two tests are described in the following section.

The First Test

As aforementioned, the first test is aimed at identifying the most representative ETVCs of the latest ones that have been launched by the Hong Kong government. Given that one of the major objectives of the present study is to provide the domestic government with a more objective evaluation of its current promotion strategy for environmental protection, only those ETVCs launched within the past three months were considered. Specifically, the first test was in the format of a 'top-of-the-mind' awareness session (c.f. Aaker, 1991) by requesting subjects to recall, within the period under investigation, a government-sponsored ETVC that was at the 'top of their minds'. To do so, each subject was asked to write down, in as much detail as possible, the specific copy points (e.g. a summary and theme(s), characters/talent, type of appeal (e.g. fear, social), slogan (if any), jingle (if any)) of his elicited ETVC. According to the theory of selective exposure and attention, people tend to have a heightened awareness and good memory of stimuli that they find pleasant or preferable (Schiffman and Kanuk, 2007). This implies that if a person likes a particular commercial very much, it is very probable that he will be able to recall that commercial in great detail. In other words, the first test tried to employ the subjects' recall accuracy and possibly preference to make judgements about the ETVCs' representativeness, and decide on which commercial should be included for a more thorough communication effectiveness analysis. Put differently, the foregoing technique was grounded in the premise that an ETVC with a high aggregate recall accuracy and preference is likely to be very popular among the public, thus justifying its status as an exemplary case for a more thorough analysis.

To conduct the top-of-the-mind awareness session, potential participants were first systematically selected and invited to participate via telephone. To avoid activating participants' awareness of ETVCs before their attendance at the test, those approached via the phone were only informed that the test was concerned

with a general social marketing campaign. A token payment was also offered to encourage participation. Consequently, 60 invitees agreed to participate in the test. After the participants finished their recall description, the accuracy of each description was judged independently by two experts specializing in Hong Kong's environmental advertising. The description was graded according to the following five levels of recall accuracy: 'Level 1 - unable to recall any ETVCs at all'; 'Level 2 - able to recall only a few specific copy points'; 'Level 3 - able to recall some but less than 50% of the specific copy points'; 'Level 4 - able to recall more than 50% of the specific copy points'; and 'Level 5 - able to recall most of the specific copy points'. This approach yielded an inter-assessor agreement of 85%. On occasions where disagreements between the two assessors arose, they were arbitrated by the author. Of the nine cases under disagreement, four were discarded eventually as the author felt it was difficult to make a conclusive judgment. Of the remaining 56 valid cases (arising from concordance or arbitration), 44 or 79% of them were graded as attaining at least a Level 4 recall accuracy.

The 'frequencies of mention' of these 44 ETVCs were then tabulated. Based on the natural break approach suggested by Ryan (1982), the two most frequently mentioned or representative ETVCs were identified. As noted, these two ETVCs had frequencies of mention of 43% and 32% respectively (the third one only had a frequency of mention of 11%). When examining these two ETVCs carefully, it was noted that they shared the following commonalities. First, each of them employed a pop singer to endorse the relevant environmental messages. Second, although each of them employed a different pop singer for endorsement, both the singers employed had been officially appointed as Hong Kong's 'environmental protection ambassadors'. These findings hint at the appropriateness of the domestic government's traditional heavy reliance on public entertainers, particularly pop singers, to promote environmental awareness among its citizens (c.f. Environment Hong Kong, 2007). Despite the foregoing commonalities, the two ETVCs were different in terms of message specificity. Briefly, while the first commercial (ETVC1) conveyed a specific environmental message relating to the 'BYOB' campaign (i.e. Bring Your Own Bag for shopping), the second commercial (ETVC2) delivered a more general message about the importance of environmental protection.

The Second Test

After the two most representative ETVCs had been identified, the second test was conducted to assess their effectiveness at each level of the communication process or hierarchy in greater detail. By adopting the telephone solicitation approach used for the first test, this subsequent test was able to recruit 160 participants. In this test, the participants or subjects were first requested to answer a few questions relating to their demographic backgrounds. They were

then invited to view a videotape containing the two representative ETVCs. The order of the two commercials was randomized across subjects to avoid any possible sequential bias. Having watched the two ETVCs, the subjects were then requested to answer questions concerning the communication effectiveness of the two commercials. All the relevant questions were pre-tested and modifications were made accordingly before the actual test was conducted. In the following section, all the relevant constructs examined in the second test will first be described. The relevant empirical findings will then be provided.

Operationalization Of Constructs

Communication Effectiveness

As hypothesized by the 'hierarchy of effects' literature, target audiences' responses to advertising information comprises the cognitive, affective and conative communication stages (Barry and Howard, 1990; Schiffman and Kanuk, 2007). When assessing the communication effectiveness of the anti-smoking advertising campaign in Hong Kong, Chan (1991) referred to the classic CAPP model (c.f. Maloney, 1966; Aaker and Myers, 1987) and refined the foregoing stages of the communication hierarchy as: (1) awareness stage (cognition); (2) comprehension stage (cognition); (3) attitude stage (affect); and (4) action tendency/intention stage (conation). In the present test, Chan's four-stage classification was adopted and operationalized as follows:

(1) Awareness

Awareness was measured by asking whether the subjects had seen the two ETVCs under study before or not (Chan, 1991; Aaker et al, 2002). Following Donthu's (1992) method, subjects who had seen a particular commercial were given a score of 1; and if they had not, they were given a score of 0.

(2) Comprehension

According to Aaker and associates (2002), the comprehension of a brand refers to audiences' degree of agreement of whether the brand has the attributes as advertised. In the present context, this can be interpreted as how far the subjects agree with or believe in the claims made by the ETVCs. Based on this, two 7-point statements were then developed to measure comprehension here. While one statement used 'strongly disagree (1)' and 'strongly agree (7)' as the anchor points of the measurement scale, the other used 'strongly disbelieve (1)' and 'strongly believe (7)' as the anchor points.

(3) Attitude

With reference to Debevec and Romeo's (1992) multi-item scale for measuring brand attitude, an instrument was developed to measure subjects' attitudes

toward the ETVCs in this study. Appendix I shows a copy of the measurement instrument.

(4) *Action tendency/Intention*

Following Lee and Green's (1991) measurement of behavioral intention, intention to engage in green activities was operationalized by two 7-point statements with 'unlikely (1)' and 'likely (7)' as the anchor points. The first statement used the word 'consider' to measure the subjects' intention to engage in environmentally friendly activities; the second used the word 'intend'.

4. Discussion of Findings

Sample Profile

Overall, 48% of the 160 subjects were male and 53% were married. The median age range and monthly personal income range of the subjects were 30-39 and HK\$10,000-HK\$14,999 (US\$1=HK\$7.8) respectively. Of all the subjects, around 25% had completed a post-secondary/university education; the remaining 75% had completed high school or left school earlier. The follow-up Chi-square test did not reveal any significant difference (at $p=0.05$) between the sample and the entire Hong Kong population in terms of the foregoing demographic characteristics (c.f. Hong Kong Annual Digest of Statistics, 2007).

Communication Effectiveness Of The Etvcs

Descriptive Statistics

The communication effectiveness of the two ETVCs under study is summarized in Table 1. As mentioned earlier, the communication effectiveness was assessed along with the four communication stages put forward by Chan (1991). As noted in Table 1, both ETVCs under investigation had very high average awareness scores (0.95; 0.93). The scores indicated that 95% and 93% of the subjects had seen ETVC1 and ETVC2 before respectively. Moreover, both commercials attained satisfactory average comprehension scores on a 7-point scale (5.65; 5.50). The subjects' attitudes toward the two commercials were positive too (5.01; 4.91 out of 7). Nevertheless, the encouraging cognitive and affective scores did not lead to proportionate conative ratings. Out of seven points, the average intention scores of the two ETVCs were only 3.83 and 3.59 respectively.

Table 1 - Communication Effectiveness of the Two
ETVCs Under Study (n=160)

Communication Stage	ETVC1	Alpha Coefficient#	ETVC2	Alpha Coefficient#
Awareness^a	0.95	n.a.	0.93	n.a.
Comprehension^b	5.65	0.72	5.50	0.75
Attitude^b	5.01	0.88	4.91	0.72
**Intention^b	3.83	0.76	3.59	0.78

Note:

^a The mean awareness scores of the 160 subjects (1=had seen the ad before; 0=had not seen the ad before).

^b Figures show the average summated mean scores on a 7-point scale (1=minimum score; 7=maximum score).

Based on subjects' responses to ETVC1 and ETVC2, the Cronbach's Alpha reliability coefficient for the comprehension, attitude and intention scales were computed and all the computed values exceed the minimum acceptable value of 0.70 for basic research (c.f. Cronbach, 1951; Nunnally, 1978).

n.a. Not applicable

** The paired t-test reveals a significant difference between the two commercials at $p = 0.05$.

To further assess the communication effectiveness, the proportion of subjects expressing positive responses to the ETVCs at each stage of the communication process was compiled. To do this, the 7-point comprehension, attitude and intention variables were first transformed to three corresponding dichotomous variables by using 4 as a cut-off point. For example, if a subject reported a comprehension rating of equal to or less than 4, his score would be treated as 'low comprehension' and coded as '0'. On the other hand, if a subject gave a comprehension rating of 5 or above, his score would be considered as 'high comprehension' and coded as '1'. A similar binary transformation was also made for attitude (negative attitude '0'/positive attitude '1') and intention (weak intention '0'/strong intention '1'). After this was completed, the number of subjects attaining a score of 1 (labeled 'stimulated subjects hereafter') at each of the four communication stages was then counted. By comparing this number with the total number of sampled subjects (i.e. $n=160$), the percentage of stimulated subjects at each of the stage was then derived.

For ETVC1, the number of stimulated subjects at the awareness, comprehension, attitude and intention stages was 95%, 89%, 76% and 23% respectively. The corresponding percentages for ETVC2 were 93%, 90%, 78% and 10%. Overall, the percentages of the two commercials demonstrated a similar pattern: namely a decreasing trend for the percentage of stimulated subjects throughout the communication process. Of particular interest, the disproportionately small percentage of stimulated subjects at the intention stage seems to highlight the ineffectiveness of the two ETVCs in channeling citizens' positive cognitive and affective responses to a desired conative response. However, the interpretation based on the foregoing percentages should be treated with caution and only be regarded as a reasonable conjecture. Strictly speaking, the percentages computed above only indicate the proportion of stimulated subjects at each communication stage *per se* but do not show the actual 'carry-over' of stimulated subjects from one stage to another throughout the whole communication process. In other words, from these percentages, people are still unable to know exactly how effective the ETVCs were in keeping subjects stimulated throughout all the stages of the communication process. To address this issue, the conditional percentages were thus computed and this is outlined in the following.

The computation of the conditional percentages borrowed the statistical concept of conditional probability and aimed at figuring out what proportion of subjects were kept stimulated as they proceeded from one communication stage to another. To compile the conditional percentages, the number of stimulated subjects counted at communication stage i (e.g. attitude stage) only included those who had already been stimulated at all other previous stages (e.g. comprehension and awareness stages). To simplify the description, this

number is labeled N_{Stage_i} hereafter. By having N_{Stage_i} divided by the appropriate denominator, two relevant conditional percentages, $CP(N_{Stage_i})_{overall}$; $CP(N_{Stage_i})_{preceding}$ were then calculated to aid a more thorough assessment of the communication effectiveness of the two ETVCs. The results are summarized in Table 2 below.

Table 2 - Conditional Percentages at Each Stage of the Communication Hierarchy (n=160)

	$CP(N_{Stage_i})_{overall}$	$CP(N_{Stage_i})_{Preceding}$
<u>ETVC1:</u>		
Awareness#	152/160 = 95%;	152/160 = 95%
↓		
Comprehension	142/160 = 89%;	142/152 = 93%
↓		
Attitude	112/160 = 70%;	112/142 = 79%
↓		
Intention	27/160 = 17%;	27/112 = 24%
<u>ETVC2:</u>		
Awareness#	149/160 = 93%;	149/160 = 93%
↓		
Comprehension	142/160 = 89%;	142/149 = 95%
↓		
Attitude	116/160 = 73%;	116/142 = 82%
↓		
Intention	16/160 = 10%;	16/116 = 14%

Note:

N_{Stage_i} Number of subjects being stimulated at stage i that were also stimulated at all other previous stage(s) of the communication hierarchy.

n Total number of sampled subjects =160.

$CP(NStage_i)_{overall}$ Conditional percentage at stage i expressed as: $NStage_i/n$.

$CP(NStage_i)_{preceding}$ Conditional percentage at stage i expressed as: $NStage_i/NStage_{i-1}$.

Since awareness is the first stage of the communication hierarchy, the numerator used to calculate the conditional percentages is equal to the total number of subjects who had seen the ad before.

Figures rounded up to nearest integer.

$CP(NStage_i)_{overall}$ was derived from $NStage_i/n$ with an emphasis on comparing $NStage_i$ with the total number of sampled subjects; whereas $CP(NStage_i)_{preceding}$ was computed by $NStage_i/NStage_{i-1}$ with an emphasis on the comparison between two consecutive communication stages. Indeed, for the two ETVCs under investigation, both $CP(NStage_i)_{overall}$ and $CP(NStage_i)_{preceding}$ exhibited a decreasing trend for the proportion of stimulated subjects as they traveled up the communication hierarchy. When the respective conditional percentages of the four communication stages were examined together, it was noted that the effectiveness of the two ETVCs decreased at a progressive rate as subjects traveled up the communication hierarchy. For instance, in terms of $CP(NStage_i)_{overall}$, while around 90% or above of the sampled subjects had seen the two ETVCs before and believed in the advertised claims, only around 70% of them had a favorable attitude toward these commercials. The decrease in the percentage was even much more drastic as subjects proceeded to the last stage of the communication hierarchy. For ETVC1, it was noted that only 17% of all the 160 sampled subjects were successfully stimulated at *all* the preceding communication stages and ended up with a strong intention to act environmentally friendly (95%→89%→70%→17%). The corresponding percentage for ETVC2 was even lower at 10% (93%→89%→73%→10%). Taken together, the conditional percentages computed above provide further evidence to support the contention that the government-sponsored environmental advertisements were ineffective in channeling citizens' satisfactory to moderately satisfactory cognitive and affective responses to at least a moderately satisfactory conative response.

Possible Message Effects

Given the difference in message specificity between ETVC1 and ETVC2, it is worth examining whether this difference also had any bearing on the communication effectiveness. To achieve this, a *doubly multivariate repeated measures design/model* was employed. The design is a special version of the *repeated measures analysis of variance* specifically for handling situations where more than one dependent variable is measured for each factor

combination (c.f. Norusis, 1994). In the present case, one within-subject factor, message specificity, was defined in the model. The factor was specified as a two-level factor to represent the message difference between ETVC1 (specific) and ETVC2 (general). In addition, the awareness, comprehension, attitude and intention scores of the two ETVCs mentioned in Table 1 were treated as the dependent variables of the model.

Having performed the multivariate analysis, the relevant statistics such as the Pillais, Hotellings and Wilks tests all rendered the same significant p -value ($p=0.03$). The results indicate a significant difference in the overall communication effectiveness between the two ETVCs which have a different degree of message specificity. To detect where the difference lay, the follow-up multiple paired t-tests were run and revealed that the intention score of ETVC1 was significantly higher than that of ETVC2 at $p=0.05$. The divergence in the intention score of the two commercials provide further insights into the influences of message specificity on people's conation to engage in environmentally friendly activities. The finding is not unexpected. For instance, even if a person really agrees and likes to behave in an environmentally friendly way after viewing the general message relating to 'ecological protection' (ETVC2), he may still not know exactly what he needs to do. The lack of the relevant knowledge to behave environmentally friendly is particularly common in countries where sustainability development is still at its infancy (Chan and Yam, 1995). Furthermore, even if a person knows what to do, he may still be unsure as to whether such action is financially justifiable or physically feasible. In contrast, a specific message such as 'bringing your own bag for shopping' (ETVC1), is relatively straightforward and easy to put into practice without great cost.

5. Implications

Several salient implications are derived from the present empirical study. First of all, the two representative ETVCs identified from the top-of-the-mind awareness session suggest the superiority of using celebrities in general and pop singers in particular to cultivate environmental awareness among the general public in Hong Kong. As far as promoting environmental awareness is concerned, the domestic government should thus continue its strategy of appointing public entertainers as environmental protection ambassadors to take advantage of their strong 'eye-catching' effect. When the two ETVCs are examined carefully, it is observed that the two appointed ambassadors are, in general, perceived by the public as 'healthy' and caring for nature. This observation corroborates the prototypical bonding theory that the endorser's image should match the message to be advertised (Lautman, 1997). Hence, when appointing environmental protection ambassadors in the future, the

government is strongly advised to preserve its present prudence in selecting the right 'spokesperson' for environmental messages. While asserting the effectiveness of celebrities in facilitating the communication of environmental messages, the foregoing discussion has confined the connotation of 'effectiveness' to the cognitive level only and not extended it to the other higher levels of the communication hierarchy. Indeed, in light of the findings of the second test, the government should probably resort to other social marketing means as well if it wishes to further enhance the effectiveness of its environmental promotion at some higher level of the communication process.

The findings of the second test manifest the decline in the communication effectiveness of ETVCs as audiences travel up the communication hierarchy. Comparatively, while the effectiveness only declines gradually throughout the first three communication stages (awareness, comprehension and attitude), it drops drastically in the last stage (intention). The failure of most of the subjects to channel their high to moderate cognitive and affective scores to at least a moderate conative rating seems to convey an important message to the government. That is, if the government wishes to encourage eco-friendly behaviors among the public, it cannot rely solely on its advertising even if the advertisements have been able to generate rather satisfactory cognitive and affective responses. Having reviewed the actual situation of Hong Kong, it is believed that the disappointing action tendency of its citizens may be attributable to the problem of *infrastructural inadequacies*. These inadequacies refer to various situational impediments that either completely inhibit people from acting in an environmentally friendly manner or only allow them to behave in such a way at a considerable cost. The high price or unavailability of quality green products, insufficient or locational inconvenience of collection points for recyclable wastes are all examples of these impediments. In the presence of these infrastructural inadequacies, citizens may be deterred from engaging in certain eco-friendly activities even if they are aware the problem of ecological deterioration and have favorable attitudes toward the idea of environmental protection.

In view of this observation, it is clear that the government should definitely do more to facilitate its citizens' engagement in various environmentally friendly activities. Among others, the government should expedite the performance of eco-friendly behaviors and green consumption through legislative measures such as the establishment of a comprehensive eco-certification scheme and clear environmental advertising guidelines. In doing so, the government can help release citizens' concerns about being cheated and raise their confidence in advertised green products. In addition, to counter the infrastructural inadequacies mentioned earlier, the government should consider increasing its environmental investments in such aspects as enhancing the availability of various recycling and waste disposing facilities available to the public. Given

that Hong Kong's environmental promotion has long been focusing on "promoting community environmental awareness" (Environment Hong Kong, 2007), it may be time for domestic policy makers to adjust their promotional strategies to include the accomplishment of other higher level communication objectives as well. Lastly, the significant difference in the communication effectiveness between the two ETVCs which have a different degree of message specificity warrants further discussion. Based on the multivariate analysis and the follow-up paired t-test results, it was noted that message specificity mainly affects subjects' intention to act: a specific message is likely to generate a higher action tendency. The findings echo Loken and Howard-Pitney's (1988) previous work and provide some useful guidelines for the government to formulate its future environmental advertising messages. Given that most Hong Kong people are still not as environmentally knowledgeable as their Western counterparts, a more specific message that comes along with some concrete suggestions on what should be done to preserve ecological well-being will definitely work better than a general one.

6. Conclusion

The present study is aimed at assessing empirically the communication effectiveness of environmental TV commercials launched recently by the Hong Kong government. Overall, the communication effectiveness is seen to decline as viewers travel up the communication hierarchy. The results indicate a very high awareness of the two tested commercials; an outcome probably derived from the ingenious use of the appropriate endorsers. The majority of the viewers under study also strongly believe in the advertised claims and perceive them favorably. Disappointingly, these encouraging cognitive and affective responses do not appear to be effectively channeled to a desired level of intention/action tendency. To improve the effectiveness at higher levels of the communication process, the government needs to reconsider its current environmental promotion strategies which focus largely on awareness creation. Moreover, to make the performance of eco-friendly activities more feasible and economically justifiable, the government needs to introduce more facilitating measures through legislation and further investments for improving the relevant infrastructures. Lastly, the present study also shows that the communication effectiveness varies with message specificity of the commercial concerned. The finding points to the importance for policy makers to tailor their advertising messages in a more specific format with some concrete and feasible suggestive actions to maximize the impact on action tendency.

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Table 1 - Communication Effectiveness of the Two
ETVCs Under Study (n=160)

Communication Stage	ETVC1	Alpha Coefficient#	ETVC2	Alpha Coefficient#
Awareness^a	0.95	n.a.	0.93	n.a.
Comprehension^b	5.65	0.72	5.50	0.75
Attitude^b	5.01	0.88	4.91	0.72
**Intention^b	3.83	0.76	3.59	0.78

Note:

^a The mean awareness scores of the 160 subjects (1=had seen the ad before; 0=had not seen the ad before).

^b Figures show the average summated mean scores on a 7-point scale (1=minimum score; 7=maximum score).

Based on subjects' responses to ETVC1 and ETVC2, the Cronbach's Alpha reliability coefficient for the comprehension, attitude and intention scales were computed and all the computed values exceed the minimum acceptable value of 0.70 for basic research (c.f. Cronbach, 1951; Nunnally, 1978).

n.a. Not applicable

** The paired t-test reveals a significant difference between the two commercials at $p = 0.05$.

Table 2 - Conditional Percentages at Each Stage of
the Communication Hierarchy (n=160)

	CP(NStage _i) _{overall}	CP(NStage _i) _{Preceding}
<u>ETVC1:</u>		
Awareness#	152/160 = 95%;	152/160 = 95%
↓		
Comprehension	142/160 = 89%;	142/152 = 93%
↓		
Attitude	112/160 = 70%;	112/142 = 79%
↓		
Intention	27/160 = 17%;	27/112 = 24%
 <u>ETVC2:</u>		
Awareness#	149/160 = 93%;	149/160 = 93%
↓		
Comprehension	142/160 = 89%;	142/149 = 95%
↓		
Attitude	116/160 = 73%;	116/142 = 82%
↓		
Intention	16/160 = 10%;	16/116 = 14%

Note:

NStage_i Number of subjects being stimulated at stage *i* that were also stimulated at all other previous stage(s) of the communication hierarchy.

n Total number of sampled subjects =160.

CP(NStage_i)_{overall} Conditional percentage at stage *i* expressed as: **NStage_i/n.**

CP(NStage_i)_{preceding} Conditional percentage at stage *i* expressed as: **NStage_i/NStage_{i-1}.**

Since awareness is the first stage of the communication hierarchy, the numerator used to calculate the conditional percentages is

equal to the total number of subjects who had seen the ad before.

Figures rounded up to nearest integer.

Appendix I - The Advertising Attitude Scale Used in the Present Survey

	1	2	3	4	5	6	7	
Very unappealing	-	-	-	-	-	-	-	Very
appealing								Very
Very bad		-	-	-	-	-	-	
good								
Low preference		-	-	-	-	-	-	High
preference								
Very ugly	-	-	-	-	-	-	-	Very
beautiful								
Not special	-	-	-	-	-	-	-	Very special
Very unhappy	-	-	-	-	-	-	-	Very happy
Dislike very much	-	-	-	-	-	-	-	Like very
much								
Very unfavorable		-	-	-	-	-	-	Very
favorable								

Source:

Adopted and modified from Debevec, K. and Romeo, J. B. (1992), "Self-Referent Processing in Perceptions of Verbal and Visual Information", *Journal of Consumer Psychology*, Vol. 1, No. 1, pp. 83-102.