

An Eco-Label Can Matter More Than Buying Green: An Experiment on Consumers' Recycling Behaviour After Tasting Eco-Labeled Coffee

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ABSTRACT

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An experiment was conducted to test whether a coffee package bearing a Rainforest Alliance Certified (RAC) label triggered affective responses favoring the coffee and further influenced the pro-environmental behaviour of participant consumers in convenience stores. One group of customers viewed an RAC-labeled package and tasted the coffee while the other group viewed a non-labeled package and tasted the coffee. Both groups filled out a questionnaire collecting Likert-type scale data on their affective responses to, perceived flavors of, and willingness to pay for the coffee during the tasting and viewing. Whether they disposed of the paper cup for the trial taste in a recycling box or a trash box was observed. A logit model was employed to estimate the probabilities of their recycling the cup over discarding the cup. Results revealed that more positive feelings were expressed and recycling behaviour was increased among customers exposed to the package with an RAC label, although the two groups did not differ significantly in their perceived flavors and willingness to pay. It was estimated that the probability of the RAC-labeled group to recycle the paper cup was 2.89 times higher than that of the non-labeled group. Based on the theory of central and peripheral routes of information processing, the mechanisms of the behavioural influence of the label are discussed with a few possible factors such as involvement and self-identity. This study contributes to the advancement of eco-label research by shifting the focus to the non-purchasing behavioral effects of eco-labels on consumers and observing the behaviors in real, rather than laboratory, settings. It might also inform the promotion of sustainable consumption of the merits of employing experiential marketing.

1. INTRODUCTION

The fact that coffee is the second most traded commodity implies that the environmental, social, and economic effects of how it is grown could be considerable. Problems regarding the sustainability of the origin country of coffee give rise to the ethical labeled coffee such as fair-trade, organic or shade-grown coffee. Coffee is so ubiquitous in everyday life globally that eco-labeled coffee could be a most teachable commodity as such labels provide consumers with clear choices and opportunities to think about how it is produced and processed could concern varying social and environmental conditions of its places of origin [1]. As Kenworthy and Schaeffer [1] elucidated, conventional or industrial growing of coffee involves the use of a large amount of herbicides, pesticides, and chemical fertilizers that contaminate soil and water and cause health risks to farmers as well as the application of monoculture that reduces biodiversity. Whereas in traditional growing, coffee is grown under shade trees that produce fruits and wood and protect the soil from erosion. It utilizes wastes of plants and animals as organic fertilizers with less input of chemicals, enhancing the biodiversity of coffee farms and benefiting farmers. The coffee market where international brokers and large roasters purchase huge amounts of beans furthered the industrial model, exacerbating associated environmental and social problems that require consumer

awareness. The popularity of coffee in Taiwan and other countries lends support to the necessity of advocating the inclusion of sustainability considerations in consumers' decisions of coffee-purchasing. To this end, an eco-label of coffee could be an influential educational tool that might bring about changes to not only consumers' purchasing behaviour but their environmental behaviour as well.

In contrast to many studies investigating factors to be considered before consumers experience eco-labeled products, this study demonstrates the label's potential effects on the perceptions and environmental behaviour of consumers after they have experienced such products, and while little attention to behavioural effectiveness of eco-labeling programs has been revealed [2], the consumer behaviours studied in later eco-label research have been typically confined to behaviours related to purchasing, in line with Golden's [3] view that there were scant studies empirically identifying the association between eco-labels and increased consumer behaviours towards the environment.

The present study furthers the line of research by extending the scope of the behavioural effects of eco-label from those buying behaviours to general environmental behaviours. Since exposure to green products could increase people's subsequent prosocial behaviour [4] and eco-labels might exert additional effects on behaviours in post-purchase situations [5], utilizing the potency of eco-labels to urge consumers to unwittingly

participate in more environmentally friendly actions could become of practical value. Conceptually, this idea has much relevance to the priming effects of eco-labels and it is beneficial to employ priming-based interventions to foster responsible environmental behaviours [6]. Again, there are few studies that analyze the influence of eco-labels from a perspective of priming.

As an improvement of previous experiments conducted with convenience samples of college students at laboratories, our study attempted to observe the recycling behaviours of customers in real convenience stores in Taiwan after they tasted a cup of coffee and simultaneously viewed its packaging either bearing a Rainforest Alliance Certified (RAC) label (experimental group) or no label (control group). How these customers felt about and perceived the flavor of the coffee with an RAC-labeled or a non-labeled package were measured with a questionnaire in order to collect data informative to the explanations of the behavioural and perceptual effects of the label based on the roles of emotions evoked. The customers of the experimental group were found to express more positive feelings of health, care, and inspiration than the customers of the control group; no significant difference was found between the two groups in perceived flavors nor in the willingness to pay for the coffee. Intriguingly, the estimates of a Logit model, a typical statistical analysis for data with a categorical or dichotomous dependent variable, suggested that the experimental group was approximately three times more likely to recycle the paper cup, being used for the trial taste of coffee, than the control group. The inquiry of the psychological mechanisms through which the RAC label could bring about recycling behaviour of these customers involves not only the principles of priming but the functions of product involvement, message processing and other factors as well. It entails an integrative approach to the discussion on these mechanisms.

2. LITERATURE REVIEW

2.1 Consumer behaviours in eco-label studies

While assessing the information effectiveness of eco-labels based on the characteristics of either the information or the consumer has been a conventional focus to which many previous eco-label studies were limited [7], some studies have involved consumer behaviour as a significant variable in the investigation of eco-labels. Overall, two concerns are reflected from a review of these studies in terms of the types and measurement of the consumer behaviours. Firstly, most of the investigated behaviours are actually those performed in the situation of buying products though they are literally termed “pro-environment consumer behaviour” [8] or “ecologically conscious consumer behaviour” [9]. There are few studies addressing the behaviours after purchasing, meaning more types of behaviours than purchasing behaviour per se could be focused on. Examples include subsequent purchasing of other products with the same eco-label [10], recycling [11], turning off the lights [12], and, even further, the pro-social behaviour such as donations to child charity [5]. In other words, the spillover [13] of consumer behaviours associated with eco-labels on other pro-environmental behaviours has not yet been much explored. Secondly, studies that use measures of actual behaviours are hardly found; instead, most studies adopt self-reported frequency of choosing eco-labeled/green products [8, 14, 15], likelihood, willingness, or intention to purchase [7, 8,

16, 17] as a proxy of actual behaviour in analyses on the relationship between eco-labels and consumer behaviours. Two notable exceptions are the work of Thøgersen, Jørgensen, and Sandager [18] measuring actual behaviour by observing consumer in-store behaviours of buying milk, and Longoni et al. [11] in an experiment recording whether participants recycled paper and plastic.

2.2 Priming effect of eco-labels

The effects of an eco-label on consumer attitude and behaviour can be examined from the latent influences that its consisting images, texts, and colors could have, as individuals could be unconsciously directed by the images, texts or the settings to which they are exposed to feel or behave in a certain way. This directing effect is referred to as priming, a subconscious process in which the sensory perceptions of an individual exposed to a previous event influence his or her reactions to a subsequent event. A number of experiments have demonstrated this interesting phenomenon; for example, participants who were exposed to a picture of a library actually lowered their voice in a subsequent task [19], and ecclesiastical images could motivate people voting in a church to favor conservative candidates [20].

Higgins and Kong [21] indicated that the influence of priming is linked with the increased availability of certain information or activated memory associations as a result of that exposure. Minton, Cornwell, and Kahle’s [22] review provides a comprehensive taxonomy of priming. In conceptual priming, a word, phrase, sign, or symbol is used to influence one’s response to a stimulus and it is hence also known as semantic priming. As signs, symbols, and shape representations often work well in drawing attention and could stimulate more cognitive elaboration [23, 24], they are suitable to prime people’s behaviour. Fitzsimons, Chartrand, and Fitzsimons [25] showed that when consumers are primed with an Apple logo, their behaviours are found to be more creative than those primed with an IBM logo. As such, the packages of products with the images, texts, and labels printed on it could quietly guide the behaviour of consumers as well.

Yet the priming effects that the labels on product packages could have on consumer behaviour are scarcely explored. Wu, DiGiacomo, and Kingstone [26] indicated that the increased recycling behaviour of participants might result from the priming effect of the message of sustainability embodied by the building of a sustainability research center. Their study suggests a new topic of eco-label research to probe into the potential power of eco-labels to prime pro-environmental behaviours. In this study, it is therefore hypothesized that the participants who viewed the RAC-labeled coffee package would be more likely to recycle the paper cup after tasting the coffee than would those who viewed the non-labeled coffee package.

2.3 Factors influencing behavioural responses to eco-labels

Priming effect alone should not fully explain the psychological process from a consumer’s seeing an eco-label to performing a behaviour, which involves several factors that interact with each other and moderate the link between stimulus and response. The most essential factor is arguably the involvement, representing the personal relevance or importance of an object for a person [27]. In a purchasing situation, involvement often affects consumers’ attention and

comprehension of product information [28, 29]. High personal involvement is associated with an individual's stronger evaluation of a message as well [30]. For our experiment on eco-labeled products and consumer behaviour, it is essential to ensure that the participants are involved in the treatments designed. A procedure in which participants can experience the product is adequate to this end as Ekström [31] argued that making the product experiential should heighten the consumers' involvement in the product. Zaichkowsky [32] stressed the affective components of involvement, indicating that when we interact with the stimulus object the emotions or feelings already existing in us are brought out. Compared with general products, the affect associated with those in eco-categories is probably more charged [33]; consumers would attach more emotions to the product with an eco-label and have more positive emotions when buying it [34]. Since emotions have been considered as a significant driver of pro-environmental behaviour [35] how an eco-label can influence the pro-environmental behaviour of consumers could be realized from an affective perspective. Upon involvement with the product, in addition to emotions, other psychological aspects in consumers are also elicited. Accordingly, we hypothesized that the participants who viewed the coffee package bearing an RAC label when tasting the coffee would have affective responses more positive than would those who viewed the package without an RAC label.

With respect to the purchase of organic food, self-identity is found to be an influential factor that drives behaviour [36]; it is also identified as a significant predictor of other green consumerism behaviours in particular (e.g., [37]) and pro-environmental behaviours in general (e.g., [38]). According to Underwood [39], self-identity is posited to be affected by product package through lived experience, which usually occurs in purchasing and using the product [40]. As participants in this study tasted (i.e., experienced or used) eco-labeled coffee and viewed its package simultaneously, these studies provide an alternative explanation for the possibility of eco-labeled products to evoke, via temporarily aroused self-identity, the pro-environmental behaviours of individuals who interact with and experience the products. This study did not measure self-identity due to concerns about participants' social desirability; nonetheless, its significance needs to be considered in discussing why eco-labels could prime consumers to behave pro-environmentally.

3. METHOD

3.1 The eco-label

Considering the potential of an eco-label to foster consumers' pro-environmental behaviour in a real market as well as the international generalizability of the fostering effect of the label observed in this study, we adopted an Arabica coffee product with a label of Rainforest Alliance Certified (RAC, <https://www.rainforest-alliance.org/>), which has been working for years in coffee markets in many countries and is gaining its attention in Taiwan's market. With a green logo of a frog, the label represents that the tea or coffee originates on the farms or forests approved by an international nonprofit organization founded in 1987, Rainforest Alliance. Rainforest Alliance [41] requires that certified farms should meet rigorous standards in management, traceability, income and shared responsibility, farming, social aspects and the

environment. For example, in the eight items of social standards, the living wage, health and safety of workers/farmers are assessed with metrics of improvement; the environmental standards, with the most number of items, set forth the requirements concerning the conservation of forests, other natural ecosystems and water, riparian buffers, protection of wildlife and biodiversity, management of wastewater and waste, energy efficiency and greenhouse gas reduction. The alliance has worked with more than 5,000 companies to source certified ingredients, with at least six million hectares of farmland certified against its sustainable farming standards. So far the RAC coffee, tea, and other crop products are sold in over 175 countries but regrettably these products have just begun to emerge in Taiwan in recent years.

3.2 Participants and procedure

An experiment in which convenience store customers received a trial taste of a cup of the RAC coffee was conducted to test the effects of RAC label on their perceptions about the coffee as well as their recycling behaviour. A total of 264 customers, 132 males and 131 females aged between 17 and 60, were approached at the convenience stores in a number of cities in Taiwan to taste the coffee and complete a questionnaire with a picture of the coffee's package. Research assistants unobtrusively observed and recorded whether the customers threw the cup in a recycling box or a general trash box after they finished the questionnaire and the tasting. Participant customers all tasted the same RAC coffee for free, but about half of them were presented with a picture of a package with an RAC label while the other half of them were presented with a picture of a package without an RAC label.

These two fictitious packages were identical in background color, typeface, and size except one bore an RAC label and the other did not. The coffee that customers tasted was an RAC product of a major coffee brand in Taiwan and prepared using a standard amount of water and coffee powder. Every customer tasted a standard volume of coffee of 20 ml at a temperature of approximately 80°C filled in a disposable, but recyclable, 207ml paper cup that was all white without any figure, photo, logo, or text. Research assistants pointed to the corner where the trash and recycling boxes were set and told the participants to put the cup "over there" without mentioning the word "trash" or "recycling" to avoid verbal hints to recycle the cup. As the convenience stores where this experiment was conducted are chain stores owned by the same corporation, the set of a recycling box and a general trash box were standardized in color, size, and the texts and format of the "Recycling" and "General Trash" signs. Only the customers who were present alone and not eating food or drinking beverages in the store were asked to participate in the experiment in order to ensure that they made independent responses to the questionnaire and handled the paper cup only, not together with other containers, packages or leftovers of food or beverage.

3.3 Questionnaire

A questionnaire (see Appendix) was designed to collect data of customers' responses in tasting the coffee and viewing its package either with or without an RAC label. Using a semantic differential scale with eight pairs of adjectives in a seven-point format, the first part of the questionnaire measured customers' feelings and imaginations when they tasted the coffee and saw

its package. These adjectives were developed through a team discussion with three experienced coffee drinkers and one green marketing expert. Certain adjectives such as natural, ecological, environmental, and green were avoided in case that customers' affective responses were biased by these adjectives instead of being elicited by the packages. Additionally, two open-ended response options were to be completed by customers with any adjective other than those adjective pairs in the semantic differential scale. These respondent-provided adjectives were categorized into environmentally related and other general positive emotions. Environmentally related adjectives were scored according to their relatedness to environment. The adjectives most related to environmental protection such as "environmentally protective" or "environmentally friendly" were scored 3; "clean," "purified," or "organic" 2; and others only subtly related to environment such as "healthy," "refreshing," or "unadorned" 1. Positive emotional adjectives, e.g., "peaceful," "happy," "wonderful," or "relaxing," were all scored 1.

The second part of the questionnaire was a set of six items asking respondents to rate the tastes of the coffee, using a five-point unipolar scale. We collected these kinds of tastes by drawing on the texts of coffee advertisements and the descriptions on the packages. The remaining part included one item for the prices that respondents were willing to pay for a cup of the tasted coffee, one item for the frequencies in which respondents drank coffee, as well as demographic items.

3.4 Statistical analysis

Data was analyzed with a number of statistical methods. As the behaviour whether customers throw the paper cup in a recycling box or a trash box is the main dependent variable of a categorical nature, a logit model was considered suitable for

the purpose of this study to estimate the probabilities of their recycling the cup over discarding the cup for the experimental (with an RAC label) and control groups (without an RAC label). Hotelling's T^2 two-sample tests were employed to analyze the differences between these two groups of customers in the interval data of the overall items of tastes (perceived flavors) of the coffee. The data of affective responses and scores of self-reported (written) affective adjectives did not meet normality assumption so the between-group differences in their items were tested with nonparametric Mann-Whitney U test. The single item of willingness to pay was tested with independent sample t-tests for its between-group difference.

4. RESULTS

4.1 Affective responses to coffee packages with/without an RAC label

Table 1 summarizes the descriptive statistics of the items of affective responses, taste, scores of written affective adjectives and willingness to pay, which were respectively tested with Mann-Whitney U tests, Hotelling's T^2 test, or independent sample t-tests for the differences between packages with and without an RAC label. As indicated in Table 1, three pairs of adjectives of affective responses yielded significant differences between a package with an RAC label and one without an RAC label, namely Healthy-Unhealthy, Caring-Indifferent, and Inspiring-Inhibiting. The customers who tasted the coffee with an RAC-labeled package expressed a stronger feeling of health, caring, and inspiration than those who tasted the coffee with a package without an RAC label by values of 0.330, 0.315, and 0.417 respectively, on a seven-point scale.

Table 1. The differences between packages with and without an RAC label in their effects

Item	With an RAC label		Without an RAC label		Mean difference
	Mean	SD	Mean	SD	
Affective responses (7-point scale) ¹					
Favorable (1) – Unfavorable (7)	3.185	1.241	3.197	1.182	-0.012
Austere (1) – Fancy (7)	2.843	1.103	2.960	1.341	-0.117
Fresh (1) – Blurred (7)	2.830	1.290	3.031	1.150	-0.202
Healthy (1) – Unhealthy (7)	2.940	1.308	3.270	1.311	-0.330*
Harmonized (1) – Conflicting (7)	2.948	1.260	3.127	1.226	-0.179
Pure (1) – Mixed (7)	3.044	1.257	3.256	1.231	-0.212
Caring (1) – Indifferent (7)	3.575	1.572	3.890	1.381	-0.315*
Inspiring (1) – Inhibiting (7)	3.448	1.341	3.865	1.216	-0.417**
Taste (5-point scale) ²					
Smoothness	2.940	0.919	3.094	0.943	-0.154
Robustness	2.716	0.947	2.627	0.936	0.089
Sourness	2.421	0.994	2.381	0.987	0.040
Bitterness	2.515	0.987	2.492	1.035	0.023
Sweetness	2.105	0.731	2.079	0.860	0.027
Floral and fruity	2.231	0.941	2.142	0.906	0.090
Scores of written affective adjectives ¹					
Environmentally-related	1.577	0.703	1.211	0.419	0.366
Positive emotions	1.333	0.483	1.118	0.332	0.216
Willingness to pay ³					
Price (USD)	2.015	1.053	1.928	1.280	0.087

Notes: 1. Mann-Whitney U tests.

2. Hotelling's T^2 test.

3. Independent sample t-test.

4. * $p < .05$, ** $p < .01$

An additional Figure 1 showing the plotted mean scores of each item of adjective pairs for the two packages provides a

clearer view of the overall feelings of these customers. One can see that the two profiles in Figure 1 are in a similar pattern

and the profile of the package with an RAC label lies to the left, the side of desirable adjectives. The respondents viewing the package with an RAC label wrote down more environmentally related adjectives such as “environmental” and “natural” among which “environmental” was mentioned repeatedly. This is indicated by the mean score of environmentally related adjectives, 1.577, yielded by averaging the total scores of these adjectives over the number of these respondents, marginally significantly ($p=0.063$) higher than 1.211, the mean score of environmentally related adjectives written by the respondents viewing the package without an RAC label. Similarly, the sum of the scores of positive emotional adjectives was averaged over the number of respondents who wrote these adjectives to yield the mean score of positive emotions. This was 1.333 for respondents who viewed the package with an RAC label and 1.118 for respondents who viewed the package without an RAC label. These two means, however, did not differ significantly.

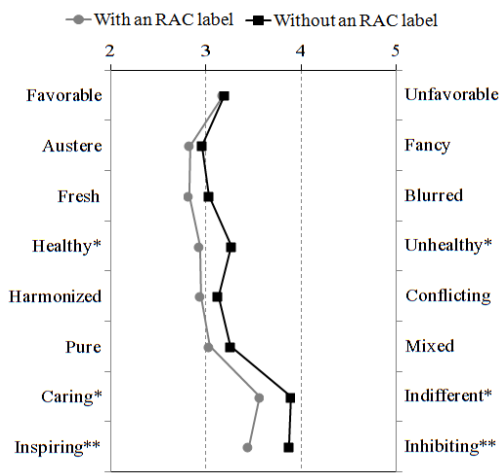


Figure 1. Profile of semantic differential scores

4.2 The effects of the RAC label on the perceived flavors of coffee

Results of Hotelling’s T^2 two-sample tests suggested that no significant difference between experimental and control groups existed in the overall items of perceived flavors of coffee. As presented by the mean differences for the six items of taste in Table 1, none of them reached a statistically significant level. The presence or absence of an RAC label on the package made no difference in the customers’ perceived taste of the coffee.

4.3 The effects of the RAC label on recycling behaviour

A logit model with customers’ behaviour of recycling or discarding the paper cup as a dichotomous dependent variable was estimated. In addition to the main factor of the existence of an RAC label, gender was also included as a factor in the model. Table 2 presents the scales and sample sizes of the dependent variable and factors and Table 3 summarizes the resultant estimates of the logit model.

In Table 3, the coefficient (B) of the factor “RAC label” is 1.047 with a significant p-value (0.021), suggesting that the existence of an RAC label positively influenced the customers’ recycling behaviour. Its odds ratio of 2.849 (i.e., $e^{1.047}$) indicated that the probability of a customer who viewed a package with an RAC label and tasted the coffee to throw the

paper cup in a recycling box would be 2.849 times higher than that of a customer who viewed a package without an RAC label and tasted the coffee to do so (Eq. (1)). The effect of gender on the disposal of the paper cup was not significant as a p-value of 0.094 shows. The interaction of RAC label and gender did not have a significant effect either.

$$\ln(\text{odds ratio}) = \left(\frac{\text{No. of Recycling}_1 / \text{No. of discarding}_1}{\text{No. of Recycling}_2 / \text{No. of discarding}_2} \right) = 1.047 \quad (1)$$

$$\Rightarrow \text{odds ratio} = e^{1.047} = 2.849$$

where, the foot note 1 is the experimental group (with an RAC label) and 2 is the control group (without an RAC label).

Table 2. The dependent variable and factors of the logit model

Variable	Name	Level	N
Dependent variable	Disposal behaviour	Recycling the paper cup	163
		Discarding the paper cup	73
Factors	RAC label	With an RAC label	118
		Without an RAC label	118
	Gender	Male	118
		Female	118

Table 3. Estimates of the parameters of the logit model

Factors	B	Standard error	Significance	Odds ratio
Intercept	0.668	0.275	0.015	
RAC label	1.047	0.455	0.021	2.849
Gender	-0.634	0.379	0.094	0.531
RAC label*Gender	-0.005	0.603	0.994	0.995

Notes: $-2 \log \text{likelihood} = 17.120$ ($p=0.001$), Pseudo- $R^2 = 0.100$, correct classification rate: 69.1%

4.4 The effects of the RAC label on willingness to pay for the coffee

The result of independent sample t-tests for means (Table 1) shows that, on average, the price that customers in the situation with an RAC label were willing to pay for the coffee differed little from that in the situation without an RAC label, varying between \$2.015 and \$1.928 for a mug of the coffee they tasted, approximately 67% higher than the local price of a cup of Americano, \$1.21, though this information was not provided as a reference in the questionnaire.

5. DISCUSSION

5.1 Affective responses

Since both groups of participants, i.e., the customers viewing a package with an RAC label and those viewing one without the label, tasted the same coffee, involvement with the product should not account for the observed differences between the two groups in the results. The product trial, however, caused the customers to become substantially involved in the experimental treatment, which is an essential prerequisite for subsequent affective responses and, possibly in turn, behaviours. Because this experiential aspect during product usage process could increase consumer involvement [42] and in a product trial, sensory experiences are a

fundamental component that triggers affective responses [43].

The package with an RAC label was more capable of evoking positive emotions, particularly those related to health and inspiration than the package without the label, consistent with previous findings that eco-products can elicit positive responses in general and consumers experience more positive feelings when buying them than non-eco products [34]. The result that healthy-unhealthy and inspiring-inhibiting emerged as the pairs with significant differences among the eight pairs of semantic differential adjectives is speculated to be associated with the green color of the RAC label. Green is widely perceived as a color of nature, which further symbolizes health; it also prompts people to act or go in the meanings of color (e.g., [44]). Though most eco-labels are in green color, the speculation should be label-specific as these labels differ in the pictorial elements and hence might stimulate different affective responses.

5.2 Flavor evaluation and willingness to pay

The label failed to make significant differences in the perceived flavors of the coffee between the two groups of customers. Despite some studies demonstrating that the visual information of beverage package could influence consumers' flavor evaluation through textual labels, color, or images [45-47], it is conjectured that because the RAC label takes up only a small fraction of the package's whole area and the customers are not informed to pay attention to the existence of the label, it is not a major part nor the sole focus so prominent as to bias the actual perception of the customers. It is also more likely that the customers are asked to rate the flavors which are almost neutrally termed as "Sourness," "Bitterness," "Sweetness," etc. in the questionnaire and thereby they evaluate the flavors quite objectively even though the package with an RAC label receives more positive affective responses. The customers in our study did not taste both cups of eco-labeled and non-eco-labeled coffee (the two are actually the same coffee) and compare their flavors so it is not viable to yield a perceived flavor difference that is biased by the cup of coffee assigned to bear an eco-label.

The similarity in the flavor evaluations of the coffee between the two groups of customers might be implicative for another result of the insignificant difference in the willingness to pay for the coffee between the two groups of customers. Unlike many eco-label studies that found consumers were willing to pay more for eco-labeled products (e.g., [15, 48], the RAC-labeled coffee and the non-labeled counterpart were given comparable prices by the customers in this study. Although Sörqvist et al [48] contend that the willingness to pay for eco-friendly coffee hinges on both the eco-label and taste evaluation, it seemed that these Taiwanese customers determined the price they would like to pay based on a pragmatic criterion of how the coffee tasted rather than how green it appeared to be, which parallels the findings of recent studies on Taiwanese coffee consumers that the taste of coffee could lead their willingness to pay [49] and the factors concerning the quality of coffee are highly valued [50]. Compared with western consumers, consumers in Taiwan might still be quite economically rational when faced with the claims of ethical coffee.

5.3 Routes of message processing

As regards the most noteworthy result of a significantly higher probability of customers in the with-eco-label group

than that in the without-eco-label group to recycle the paper cup after they tasted the coffee, we posit that it might be explained with two routes of the process, central and peripheral, from the stimulus of the RAC label to the result of recycling behaviour. These tentative explanations are based on the elaboration likelihood model (ELM) of persuasion [51, 52] elucidating that an individual makes decisions about a message by utilizing environmental cues such as seals (e.g., [53]), instructional signs (e.g., [54]), or some superficial features as a cognitive shortcut, i.e., through a peripheral route or alternatively by thoughtfully examining and evaluating the content of the message with respect to the reliability and construction of the underlying arguments, i.e., through a central route. The hypothetical process (Figure 2) consisting of the two routes starts with the involvement of customers with both the package and the coffee to a certain extent; they all completed the procedure of viewing the package with or without an RAC label and tasting the coffee. This involvement is fundamental to and initiates the subsequent mental process with peripheral and central routes.

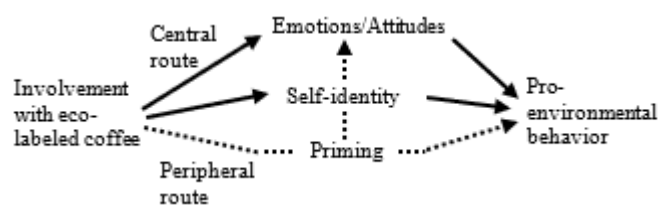


Figure 2. A reference framework of the psychological processes

5.3.1 Peripheral route

It is argued that through the peripheral route, behaviour change can be triggered by implicit situational cues [55]. In light of the result of a study cited above, that the messages in a sustainability research center could prompt the recycling behaviour of patrons, being considered as a case of priming effect [26], the peripheral route here is presumed to represent the priming effect of the RAC label. In theory, priming works when a person's exposure to some event or stimulus (the prime) increases the accessibility of prime-related information in memory, which in turn impacts the reactions to a following event [21, 56]. Accordingly, the exposure to the RAC label facilitated the access to the information related to an eco-label as suggested by more environmental-related adjectives written by the customers who viewed the RAC-labeled package. This method of free elicitation is also used in a few priming studies to verify the accessibility of the attributes or information related to the stimuli (e.g., [56]). The priming effect of the RAC label should be attributed to its constituent texts, image as well as its color so it is both conceptual (via the meaning of the words) and perceptual (via the visual features).

The discussions on the mechanisms of how the RAC label primed customers' recycling behaviour are two-fold. Firstly, applying the reasoning of Aarts and Dijksterhuis [19], it is argued that a situational norm is activated upon one's exposure to the stimulus and it motivates normative behaviours associated with that stimulus. According to Craig [57] and Hetherington and Baltes [58], we develop mental representations of how to conduct generally accepted, i.e., normative, behaviours through socialization. These normative behaviours are mentally associated with specific situations where the behaviours can be applied [59] and hence can be activated automatically to guide our behaviour when we

encounter a situation [19]. In the same vein, the RAC label could activate a norm of environmental protection and relevant environmental behaviours in the minds of the customers of this study; then, when they face the situation of disposing of the cup they can instantly access the normative behaviours just activated and conduct recycling behaviour, which is appropriate for the situation. Secondly, the possible mechanism of the priming effect of the RAC label pertains to the temporary self-identity induced by the image of the label coupled with the coffee-tasting experience, logically similar to Rutchick's [20] contention about the influence of Christian images on polling behaviour. Eco-shopping and eating are both found to be the type of pro-environmental behaviours that self-identity can predict best [38] because consumers construct self or identity via food shopping and consumption [60]. Conversely, actually performing pro-environmental behaviours might largely shape an individual's self-concept (e.g., [61, 62]) so the purchase of eco-labeled products can shift one's self-perception to the kind of person who buys these products [63]. The packages are usually the medium that affects the self-identity of consumers in using or consuming the products [39, 40]. In tasting the RAC-labeled coffee the customers were involved in a situation of using eco-products and might unwittingly identify themselves with the green consumers who use those green products or environmentalists in a broader sense. Many of them continued "acting" as green consumers, a role given or strengthened by the RAC-label in the subsequent situation of disposing of the paper cup by recycling it. For those customers who tasted the coffee but saw a package without an RAC label, this mechanism did not occur since they received no cue related to being green. It must be noted that it is probably a temporal elicited self-identity, as the random assignment of the customers in experimental and control groups should minimize the probability that the observed effect in the experimental group is due to more customers who really identify themselves with green consumers than in the control group.

5.3.2 Central route

The other route through which the RAC label can contribute to the recycling behaviour of customers is probably the central route of ELM that should lead to the formation of an attitude endorsing the pro-environmental behaviour. The presence of thoughts relevant with the target message indicates the elaboration of cognitive responses [64], representing a central route of message processing. In this view, the environmental adjectives enumerated by customers are an indicant of high involvement with the coffee package bearing an RAC label, in the same vein as the data obtained with a similar procedure in Petty and Cacioppo's [51] work. As Werner et al [54] indicate that via elaboration of the message we develop attitudes that are accessible and maintain our behaviour, it might be plausible to argue that a nature-favoring attitude inherent in rather many customers is accessed through elaborating the RAC-labeled package. The activation and accessibility of attitude are crucial for the attitude to guide behaviour [51, 54, 65] and the attitude formed through the central route of processing is robust and has a powerful impact on behaviour [66]. Since ecological concerns, like other ethical issues, are deeply inherent in the humanitarian nature of human beings [67], this latent attitude might have been accessed in the minds of a considerable number of these customers while they were scrutinizing the RAC-labeled package; it in turn motivated them to recycle the paper cup soon afterward. Considering

consuming RAC-labeled coffee as a pro-environmental behaviour, the subsequent behaviour of cup recycling could also be seen as a spillover. In the domain of pro-environmental behaviour, Thøgersen and Noblet [68] explain that this occurs when performing an initial behaviour activates a latent pro-environmental disposition, which then increases the likelihood of his or her behaving in a pro-environmental way later.

5.4 The role of emotions

It has been found that the presence of an ecolabel can bring about a more positive attitude toward the product [34]. Affect or emotion could be an important driver of the recycling behaviour in the psychological process for the customers of the experimental group (i.e., viewing a RAC-labeled package) who on the average in this case, had an inclination to feel the coffee "caring" as opposed to the "indifferent" feeling that the customers of control group (viewing a non-RAC-labeled package) were inclined to. This result conforms to Gutierrez and Seva's [34] argument that the ecological attributes of eco-products form a unique emotion set on the grounds of the altruism and care for other beings they grow from. Eco-labels may cause the formation of new mental categories in consumers and the strong emotions associated with those categories can imply for or greatly influence their subsequent behaviours [69]. Such an influence on behaviour should stem from the protective feelings toward the environment stimulated by the properties of eco-products [70]; they feel engaged in saving the environment when purchasing these products [34, 70]. Our results where the customers viewing the RAC-labeled package significantly tended to agree that the coffee was felt to be "inspiring" and wrote more environmentally-related adjectives lend support to a similar explanation that the emotions related to an eco-category motivated them to recycle the paper cup. The pictorial symbol of a green frog in the RAC label is particularly representative of this category and should have aroused a protective emotion and affection for nature in the viewers.

6. CONCLUSION AND SUGGESTIONS

An RAC-label on a coffee package matters quite much as to the elicitation of consumers' pro-environmental behaviour, e.g., recycling, as demonstrated in this study. A significantly higher proportion of customers who viewed the RAC-labeled package and tasted the coffee recycled the paper cup for the trial taste, compared with that of customers who viewed the non-labeled package and tasted the coffee. In terms of the probability of recycling over discarding the paper cup, customers of the RAC-labeled group were approximately three times more likely to recycle it than those of the non-labeled group as the estimates of the Logit model suggested. Based on the theories about ELM's central and peripheral routes of information processing and priming, the present study addresses possible mechanisms involved in the process from spotting the RAC label to performing the recycling behaviour, where several factors such as product involvement, self-identity, emotion, and attitude could play a critical role. The RAC-label is found to elicit customers' positive feelings of "healthy", "caring," and "inspiring" in the semantic differential scale of affective responses as well as increase the accessibility of information related to the label in their mind and hence enables many of them to write down the adjectives

including “environmental” and “natural.” Nevertheless, the presence or absence of the label makes no significant difference both in flavor evaluations and in willingness to pay.

A label can serve as a central factor or peripheral cue in influencing consumer evaluation depending on whether consumers are highly or lowly involved with the product [53]. The procedure of visually inspecting a coffee package bearing an RAC label together with tasting the coffee increased the involvement with the coffee, leading customers to process the information of the package and the label through a central route. In some way, its effect of triggering customers’ recycling the paper cup is also similar to an instructional sign that prompts recycling behaviour in Werner et al’s [54] work, indicating that such a sign has the property of a peripheral route as people just recycle mindlessly without processing the message or thinking about their action and do not recycle in the absence of the sign [51, 54, 71]). The subconscious recycling behaviour brought about by the priming-like effects of an RAC label, even though it could be motivated by the emotions or attitude elicited in scrutinizing the RAC-labeled package, implies that whether the behaviour is sustained after and outside the experimental situation is indeterminate. This study thus suggests the necessity of educational programs of green consumerism that are eco-label-themed and devised with suitable teaching methods and materials to echo some scholars’ emphasis on the assisting role of educational programs for eco-labels [7, 69]. These programs need to be tailored to consumers including students and adults and are most favorably implemented in real places outside the classroom situation.

Alternatively, in addition to simply providing eco-labeled coffee itself, exhibiting the eco-label along with its environmental messages in pantry rooms or cafeterias in workplaces and the dining area in conference venues might be advantageous for engaging considerable numbers of staff and participants in pro-environmental behaviours. A practice of this kind should act as a subtle form of education, of which the effect on recycling behaviour is short but the increase of correct disposal of waste in those places is immediate.

A few limitations of this study must be acknowledged; these limitations imply some suggestions as well. It must be noted that the argued functions of attitude and self-identity involved in the two-route process from viewing the RAC label to the recycling behaviour need to be verified in further studies with a sophisticated experimental design that measures attitude and self-identity without eliciting participants’ awareness of being investigated and trying to think and act pro-environmentally. For a simpler experiment such as the present study, at least two experimental variables that could also be influential in regulating the effectiveness of eco-labels are suggested for future research. One concerns the type of pictorial symbols in the eco-label. Different effects on emotions, attitude, or behaviours should result from the pictorial symbols other than the frog as shown in the RAC label. The other is the size of the eco-label with which its priming effect probably varies. It has potential relevance to the salience of eco-labels that can attract participants’ attention and affect their perceptions to the extent which even their ratings of flavor are biased by the label. Regarding the suggestions for the dependent variable, consumer behaviours, as to whether eco-labels can encourage other pro-environmental behaviours besides recycling needs to be investigated. Additional observations on the pro-environmental behaviours over a longer period of time after the experimental treatment are also needed in that it can test

the greater persistence of behaviours presumed to be generated through a central route of information processing [72].

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NOMENCLATURE

- B beta coefficient
- N sample size
- SD standard deviation

APPENDIX

A Questionnaire on Coffee Taste and Package

1. What are the feelings or imaginations that this coffee brings you after you tasted it and viewed its package? For each of the adjective pairs below, are your feelings or imaginations closer to the adjectives on the left side or those on the right side? Please specify the extents.

(Left)	Very	Quite	A little	Neutral	A little	Quite	Very	(Right)
Favorable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unfavorable
Austere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fancy
Fresh	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Blurred
Healthy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unhealthy
Harmonized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conflicting

Pure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mixed
Caring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Indifferent
Inspiring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inhibiting

In addition to the above adjectives, please write down at most two adjectives that describe other feelings or imaginations you have (NOT the tastes and flavors):

(1) _____ (2) _____

2. In terms of taste and flavor, the coffee tastes like having ...

	No	Little	Some	Quite much	Very much
Smoothness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Robustness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sourness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bitterness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sweetness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Floral and fruity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. As far as the volume of a mug is concerned, you would like to pay _____ (in NTDs) for a cup of such coffee.

4. Your demographics:

Gender: Male Female Age: ____ Marriage: Not married Married Others

Education: Junior high school graduate High school at ____ grade __-year college at ____ grade University at ____ grade Master program Doctoral program

High school graduate 5- or 2-year college graduate Bachelor degree Master degree Doctoral degree

End of the questionnaire. Thank you!